Thecus N199

User's Manual

Copyright and Trademark Notice

Thecus and other names of Thecus products are registered trademarks of Thecus Technology Corp. Microsoft, Windows, and the Windows logo are registered trademarks of Microsoft Corporation. Apple, iTunes and Apple OS X are registered trademarks of Apple Computers, Inc. All other trademarks and brand names are the property of their respective owners. Specifications are subject to change without notice.

About This Manual

All information in this manual has been carefully verified to ensure its correctness. In case of an error, please provide us with your feedback. Thecus Technology Corporation reserves the right to modify the contents of this manual without notice.

Product name: Thecus N199
Manual Version: 1.1
Release Date: November 2007

Limited Warranty

Thecus Technology Corporation guarantees all components of Thecus N199 are thoroughly tested before they leave the factory and should function normally under general usage. In case of any system malfunctions, Thecus Technology Corporation and its local representatives and dealers are responsible for repair without cost to the customer if the product fails within the warranty period and under normal usage. Thecus Technology Corporation is not responsible for any damage or loss of data deemed to be caused by its products. It is highly recommended that users conduct necessary back-up practices.

Safety Warnings

For your safety, please read and follow the following safety warnings:

⚠ Read this manual thoroughly before attempting to set up your N199.

⚠ Your N199 is a complicated electronic device. DO NOT attempt to repair it under any circumstances. In the case of malfunction, turn off the power immediately and have it repaired at a qualified service center. Contact your vendor for details.

⚠ DO NOT allow anything to rest on the power cord and DO NOT place the power cord in an area where it can be stepped on. Carefully place connecting cables to avoid stepping or tripping on them.

⚠ Your N199 can operate normally under temperatures between 5°C and 40°C, with relative humidity of 0% – 80%. Using the N199 under extreme environmental conditions could damage the unit.

⚠ Ensure that the N199 is provided with the correct supply voltage (AC 100V ~ 240V, 50/60 Hz). Plugging the N199 to an incorrect power source could damage the unit.

⚠ Do NOT expose the N199 to dampness, dust, or corrosive liquids.

⚠ Do NOT place the N199 on any uneven surfaces.

⚠ DO NOT place the N199 in direct sunlight or expose it to other heat sources.

⚠ DO NOT use chemicals or aerosols to clean the N199. Unplug the power cord and all connected cables before cleaning.

⚠ DO NOT place any objects on the N199 or obstruct its ventilation slots to avoid overheating the unit.

⚠ Keep packaging out of the reach of children.

⚠ If disposing of the device, please follow your local regulations for the safe disposal of electronic products to protect the environment.

Table of Contents

Chapter 1: Introduction

Overview

Thank you for choosing the Thecus N199 IP Storage Server. The Thecus N199 is an easy-to-use storage server that allows a dedicated approach to storing and distributing data on a network. Two Gigabit Ethernet ports enhance network efficiency, allowing the N199 to take over file management functions. The N199's user-friendly GUI supports multiple languages, and its built-in media server and optional wireless connectivity via USB dongles allow users to share and enjoy their digital media in virtually any room of the house.

Product Highlights

File Server

First and foremost, the N199 allows you to store and share files over an IP network. With a Network Attached Storage (NAS) device, you can centralize your files and share them easily over your network. With the easy-to-use web-based interface, users on your network can access these files in a snap.

To learn about the Web User Interface, go to **Chapter 5: Using the N199 > Web User Interface**.

Media Server

The N199 can also act as a convenient media server, allowing you to enjoy and share photos, music, and movies via the uPnP AV streaming protocol.

To set up the Media Server, refer to **Chapter 4: Additional Feature Setup > Media Server**.

FTP Server

With the built-in FTP Server, friends, clients, and customers can upload and download files to your N199 over the Internet with their favorite FTP programs. You can create user accounts so that only authorized users have access.

To set up the FTP Server, refer to **Chapter 4: Additional Feature Setup > FTP Server**.

iTunes® Server

Digital music is one of the hottest trends, and with the built-in iTunes® server, you can share your digital music files with every iTunes-equipped PC on your network. The iTunes Server is also incredibly easy to set up!

To set up the iTunes Server, refer to **Chapter 4: Additional Feature Setup > iTunes Server**.

Photo Gallery

Got a lot of photos? Share them effortlessly with the N199's built-in Photo Gallery. Users can create albums and upload photos in a snap, and the N199 will even auto-create thumbnails.

To find out how to share photos with the N199, refer to **Chapter 5: Using the N199 > Using Photo Gallery**.

Backup Server

Don't leave precious data to chance. With advanced backup capabilities, you can easily upload mission critical files to the N199, and even automate your backup tasks for true peace-of-mind.

To find out how to backup your files with the N199, refer to **Chapter 5: Using the N199 > File Backup**.

Download Manager

Tired having downloads take up all of your bandwidth when you need it most? With the N199's Download Manager, you can let the N199 complete your BT, HTTP, and FTP during off-peak hours. With the N199 lower power requirements, you can even save money off your monthly power bill.

To set up the Download Station, refer to **Chapter 4: Additional Feature Setup > Download Manager**.

Printer Server

With the N199's Printer Server, you can easily share an IPP printer with other PCs connected to your network.

To set up the Printer Server, refer to **Chapter 4: Additional Feature Setup > Printer Server**.

IP Cam Surveillence Server

Keep an eye on things with the built-in IP Cam Surveillence Server. Just plug in a compatible webcam and the N199 can send snapshots to an account that you specify. Best of all, your PC doesn't even have to be turned on!

To set up the IP Cam Surveillence Server, refer to **Chapter 4: Additional Feature Setup > IP Cam Surveillence**.

Package Contents

Your N199 package should contain the following items:

- Thecus N199 NAS Device
- Accessory Pack:
  - Power cord
  - RJ-45 Ethernet cable
  - hard disk screws
  - hard disk tray screws
  - Installation CD
  - Quick Installation Guide
  - Warranty card

Please check to see if your package is complete. If you find that some items are missing, contact your dealer.

Front Panel

The N199's front panel displays the unit's array of status LEDs, and is also where you'll find the power button and USB port. See the table below for a detailed explanation of each:

Item	Description
Power Button	• Power on/off N199
Power LED	• **Solid blue:** N199 is powered on
System Status LED	• **Blinking orange:** system is starting up • **Blinking red:** system error • **Off:** system startup complete; system operating normally
LAN LED	• **Solid green:** network link • **Blinking green:** network activity
HDD 1 LED	• **Solid blue:** HDD 1 detected • **Blinking blue:** Active HDD 1 data transfer • **Solid red :** HDD 1 error detected • **Blinking red:** HDD 1 capacity is nearly full (90% or more) * If RAID is configured, capacity is based on the entire RAID system.

USB LED	• **USB Device Connection**
	  o **Blinking blue** (5 seconds): USB device connected successfully.
	  *For universal USB memory card readers, the USB LED will blink blue when one or more card is mounted successfully.
	  o **Blinking red** (5 seconds): USB device connection failure
	• **Data Transfer**
	  o **Blinking blue:** Active data transfer
	  o **Blinking red:** USB device read/write error

One-Button USB Copy	• **One-Button Copy** Push once to copy entire USB volume to the N199. A short beep will sound to acknowledge that files are now being copied. Files are stored in a folder named by current time stamp: (YearMonthDayHHMM)
USB Port	• USB 2.0 port for USB storage expansion.

Rear Panel
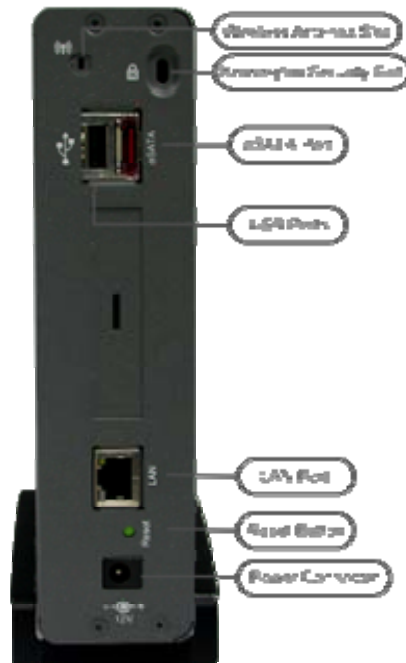
The rear panel of the N199 houses the USB and Ethernet connections, as well as the power connector. See the table below for descriptions of each:

Item	Description
Power Connector	• Connect the included power cord to this connector
LAN Port	• LAN port for connecting to an Ethernet network through a switch or router
USB Ports	• USB 2.0 ports for storage expansion
eSATA Port	• eSATA port for high-speed storage expansion
Reset Button	• Resets the N199 • Press for five seconds during boot process to reset IP address and admin password
Wireless Antenna Slot	• Use this to extend your wireless range by attaching an antenna to it • Only available on N199 with wireless capability
Kensington Security Slot	• Connect a locking device here to secure your N199

Chapter 2: Getting Started

Overview

Your N199 is designed for complete ease-of-use. To help you get started, the following chapter will help you get your N199 up and running in no time. Please read it carefully to prevent damaging your unit during installation.

Before You Begin

Before you begin, be sure to take the following precautions:

1. Read and understand the ***Safety Warnings*** outlined in the beginning of the manual.

2. If possible, wear an anti-static wrist strap during installation to prevent static discharge from damaging the sensitive electronic components on the N199.

3. Be careful not to use magnetized screwdrivers around the N199's electronic components.

4. The N199 uses its chassis to dissipate heat. Please leave your N199 in a well-ventilated area to prevent overheating.

Hard Disk Installation

The N199 supports a standard 3.5″ (SATA) hard disk. To install a hard disk into the N199, follow the steps below:

1. Remove two screws located on the back of the unit using a Philips screwdriver.

2. Unscrew four mounting screws.

3. Lift up the hard disk tray by pulling up the top panel of the N199.

4. Carefully insert a standard 3.5″ SATA hard disk into the tray, and secure the hard disk with screws from the included accessory pack.

5. Carefully lower the hard disk tray back into the N199.

6. After making sure the tray is in place and the connectors are aligned, secure the hard disk tray with screws.

NOTE	If your hard disk was previously part of a RAID 1 array, it will automatically rebuild. If you replace all the drives with higher capacity drives, you need to go to the Administrator login and format the drives.

Cable Connections

Make the following connections on the Thecus N199 and then power up the unit:

1. Connect an Ethernet cable from your network to the WAN port on the back panel of the N199.

2. Connect the provided power cord into the universal power socket on the back panel. Plug the other end of the cord into a surge protected socket.

3. Press the power button on the front panel to power on the N199.

4. Make sure system is running properly by checking all front panel LEDs for any error indications.

Installation Wizard

The handy Thecus Setup Wizard makes configuring N199 a snap. To configure the N199 using the Setup Wizard, perform the following steps:

1. Insert the installation CD into your CD-ROM drive (the host PC must be connected to the network).

2. The Setup Wizard should launch automatically. If not, please browse your CD-ROM drive and double click on **Setup.exe.**

Click *START* to continue.

NOTE	For MAC OS X users, double click on Thecus Setup Wizard 1.1.6.dmg

3. The Setup Wizard will start and automatically detect all Thecus storage devices on your network. If none are found, please check your connection and refer to **Chapter 7: Troubleshooting Guide** for assistance.

4. Select the N199 that you like to configure. Click *NEXT*.

5. Login with the administrator account and password. The default account and password are both "admin". Click *NEXT*.

6. Name your N199 and configure the network IP address. If your switch or router is configured as a DHCP Server, configuring the N199 to automatically obtain an IP address is recommended. You may also use a static IP address and enter the DNS Server address manually. Click *NEXT* to continue.
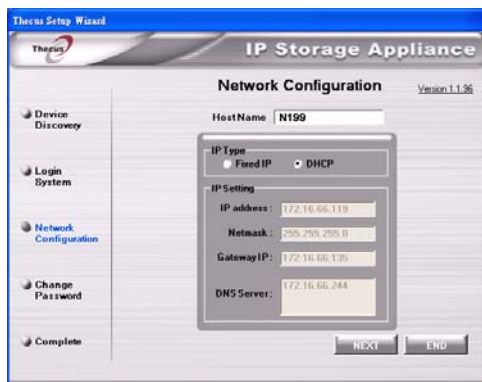
7. Next, it's time to change the default administrator password. Enter the new password in the top blank, and repeat the password in the bottom blank. Click *APPLY* to save your changes. Click *END* to go to the final step.

8. Finished! Access the N199 Web Administrator Interface by pressing the *Start Browser* button. You can also configure another N199 at this point by clicking the *Setup Other Device* button. Press *END* to exit the wizard.

| NOTE | The Thecus Setup Wizard is designed for installation on systems running Windows XP/2000 or Mac OSX or later. Users with other operating systems will need to install the Thecus Setup Wizard on a host machine with one of these operating systems before using the unit. |

First Time Setup

Once the hardware is installed, physically connected to your network, and powered on, you can now configure the Thecus N199 so that it is accessible to your network users. Follow the steps below for initial software setup.

Step 1: Initial Login

Make sure your network is connected to the Internet and access the N199 Login webpage:

1. Type in the default IP address `http://192.168.1.100` in your browser's address line. If you have changed the N199's IP address, type this in instead.

> **NOTE**   To access any IP address, your computer must be configured with the correct IP settings. The IP address should be 192.168.1.x, where x is a number between 1 and 254.

2. The **Login** screen appears.

3. To gain initial access to the system type in the factory default administrator user name and password, which are as follows:

    User Name: `admin`
    Password: `admin`

4. Press *Login*.

5. The **About** screen from the **Status** menu appears showing product information.

Step 2: System Check and Configuration

Once logged in, you are greeted with the Web Administration Interface, where you can check the N199's status, as well as configure its operating parameters.

1. In the **Status** menu, choose the *System* item to go to the **System Status** screen. Check that the basic system information such as CPU loading and Fan RPM are all OK.

2. In the **Status** menu, choose the *Info* item to go to the **System Information** screen. Change the System Description to describe your system and press *Apply*. This information appears on the **Login** page.

3. In the **System** menu, choose the *Administrator Password* item. The screen that appears lets you change the administrator password for the system. Press *Apply* to confirm your settings.

4. In the **System** menu, choose the *Time* item and the **Time** screen appears. Set the date, time and time zone and press *Apply*.

Step 3: Configure Network Settings

After setting the N199's basic configuration options, the next step is to configure its network settings.

1. In the **Network** menu, choose the *LAN* item and the **Network Configuration** screen appears.

2. Set host name and specify the domain name.

3. **Enable DHCP** for setting the IP automatically or **Disable DHCP** to enter your own IP settings.

4. In the **Network** menu, choose the *Service* item and the **Service Support** screen appears.

5. **Enable** or **Disable** each protocol according to your requirements. Press *Apply* to confirm the setting.

> **NOTE**
> - For normal usage, enabling all protocols is recommended.
> - For added security, disable WebDisk support and enable Secure WebDisk support.
> - If DHCP is enabled in the Network Settings screen, UPnP is automatically enabled.

For details on configuring your network settings, refer to **Chapter 3: System Management > Network Management**.

Step 4: Create Local Users and Groups

After your RAID is built, you can begin to create local users and groups for the N199.

1. From the **Accounts** menu, choose *Users* item and the **Local User Configuration** screen appears. Click *Add* to add a new user.

2. Enter a name and password for each user in the **Name** and **Password** boxes and re-enter the password in the **Confirm Password** box.

3. Press the *Apply* button for each user and they will be added to the user list.

4. From the **Accounts** menu, choose *Groups* item and the **Local Group Configuration** screen appears. Click *Add* to add a new group.

5. Enter a group name in the Group Name box and click *Apply* to add the group to the group list.

For more on managing users, go to **Chapter 3: System Management > User and Group Management**.

Step 5: Create Folders and Set Up ACLs

Once users are introduced into your network, you can begin to create various folders on the N199 and control user access to each using Folder Access Control Lists.

1. From the **Storage** menu, choose the *Folder* item and the **Folder** screen appears. Press the *Add* button and the *Add Folder* screen appears.

2. Enter the name and description of the folder and choose whether it is browseable. Press *Apply* to create the folder.

3. On the **Folder** screen press *ACL* (Access Control List) to configure which users have access to this folder.

4. On this screen, configure access to this folder for users and groups. Select a user or a group from the left hand column and then choose *Deny*

Access, *Read Only*, or *Writable* to configure their access level. Press *Apply* to confirm settings.

> **NOTE**   You must set the ACL for each folder for access by specific users and groups; otherwise the folder is inaccessible to all users and groups.

For more information on managing folders, see **Chapter 3: System Management > Storage Management > Folder Management**.

To find out about configuring Folder Access Control Lists, see **Chapter 3: System Management > Storage Management > Folder Management > Folder Access Control List (ACL)**.

Step 6: Start Services

Finally, you can start to setup the different services of the N199 for the users on your network. You can find out more about each of these services by clicking below:

Windows Networking   **Media Server**
Apple File Protocol (AFP)   **Download Manager**
FTP Server   **Printer Server**
iTunes® Server   **IP Cam Surveillance Server**
Photo Gallery

Chapter 3: System Configuration

Overview

The N199 provides an easily accessible web management interface. With it, you can configure and monitor the N199 anywhere on the network.

Web Administration Interface

Make sure your network is connected to the Internet. To access the N199 **Login Page**:

1. Type the N199's IP address into your browser. (Default IP address is `http://192.168.1.100`)

NOTE	Your computer's network IP address must be on the same subnet as the N199. If the N199 has default IP address of 192.168.1.100, your managing PC IP address must be 192.168.1.x, where x is a number between 1 and 254, but not 100.

2. Login to the system using the administrator user name and password. The factory defaults are:

   User Name: `admin`
   Password: `admin`

   If you changed your password in the setup wizard, use the new password.

Once you are logged in as an administrator, you will see the **Web Administration Interface**. From here, you can configure and monitor virtually every aspect of the N199 from anywhere on the network.

Menu Bar

The **Menu Bar** is where you will find all of the information screens and system settings of the N199. The various settings are placed in the following groups on the menu bar:

Menu Bar	
Item	**Description**
Status	Current system status of the N199.
Storage	Information and settings for storage devices installed into the N199.
Network	Information and settings for network connections and services, as well as various services of the N199.
Accounts	Allows configuration of users and groups.
System	Various N199 system settings and information.
Language	Choose your preferred language here.

Clicking on any of these items will display the dropdown menu selections for each group.

In the following sections, you will find detailed explanations of each function, and how to configure your N199.

Language Selection

The N199 supports multiple languages. On the menu bar, click *Language* and the **Change Language** screen appears. This screen allows you to select preferred language for the N199. The N199's interface supports the following languages:

- English
- Simplified Chinese
- Traditional Chinese
- German
- French
- Italian
- Japanese
- Korean
- Spanish
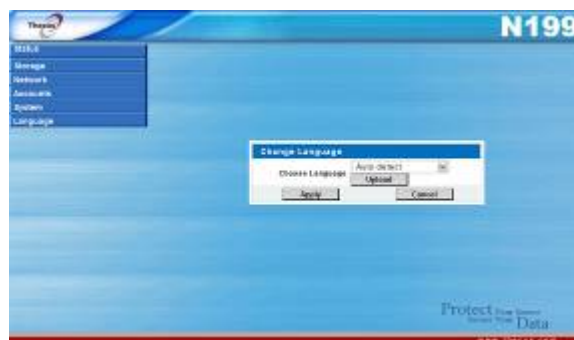
Press *Apply* to confirm your selection.

Language Package Upload and Management

You can also upload additional language packs as they become available. To do this, press *Upload* and the **Language Package Upload/Management and User Upload Language Package List** screens appear.

To upload a language package, click *Browse* and browse for the language package location. Select the language package file and click *Open*. Then, click *Apply* to upload the language package to the N199. Once uploaded, the language package will appear in the **User Upload Language Package List**.

User Upload Language Package List	
Item	**Description**
Product	Name of language package.
Version	Language package version number.
Description	Language package description.
Remove Package	Click *Remove* to remove the selected language package.

Status Menu

The **Status** Menu on the menu bar allows you to see various aspects of the N199. From here, you can discover the status of the N199, and even find out other details like firmware version and up time.

Product Information

Once you login, you will first see the basic **Product Information** screen providing **Manufacturer**, **Product No.**, **Firmware Version**, and **Up Time** information.

To access this screen again, navigate to *Status* > *About*.

System Status

From the **Status** menu, choose the *System* item, and the **System Status** screen appears. This screen provides basic system status information.

System Status	
Item	**Description**
CPU Loading (%)	Displays current CPU workload of the N199.
Fan RPM	Displays current RPM of the internal fan.
Fan Speed Control	You may select a desired fan speed from here. **Normal** and **High** fan speeds are available. Click *Apply* to save your changes.
Up Time	Shows how long the system has been running.

System Information

From **Status** menu, choose the *Info* item, and the **System Information** screen appears. You can change the system information that appears on uPnP devices screens (i.e. Network Neighborhood) on Windows-based systems by entering the new information here and pressing *Apply* to confirm.
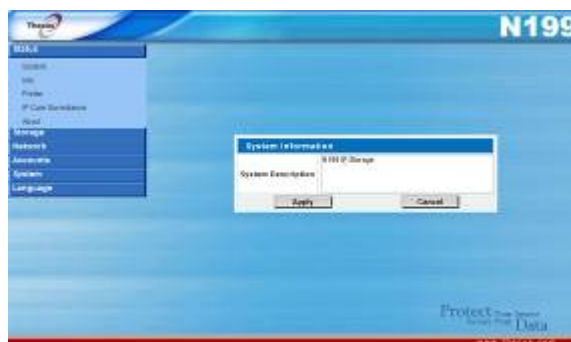
System Information	
Item	**Description**
System Description	Shows the system description that would also appear on the Login page.

Printer Status

From the **Status** menu, choose the *Printer* item, and the **Printer Information** screen appears. The Printer Information screen provides the following information about the USB printer connected to the USB port.

Printer Information	
Item	**Description**
Manufacturer	Displays the name of the USB printer manufacturer.
Model	Displays the model of the USB printer.
Status	Displays the status of the USB printer.
Printer Queue	Click to remove all documents from printer queue

If a corrupt print job is sent to a printer, printing may suddenly fail. If your print jobs seem to be locked up, pressing the *Remove All Documents* button to clear the print queue may resolve the issue.

For information on how to set up the Printer Server, refer to **Chapter 4: Additional Feature Setup > Printer Server**.

NOTE	In order to use the Printer Server, you must first install the Printer Server module located on the installation CD. Once installed, the Printer Status option will appear on the Main Menu. See Chapter 4: Additional Feature Setup > Print Server for more details.

Storage Management

The **Storage Menu** displays the status of storage devices installed or connected to the N199, including disk and RAID information.

Disk Information

From the **Storage** menu, choose the *Disks* item and the **Disk Information** screen appears. From here, you can see various items about installed SATA hard disks. Blank lines indicate that a SATA hard disk is not currently installed.

Slot 2 is reserved for an eSATA hard disk. For instructions on how to install one, please refer to **Chapter 6: Tips and Tricks** > *eSATA Strorage Expansion*.

WARNING — Installing an eSATA hard disk will erase all data on that disk. This data can not be recovered. Please ensure that all contents on the eSATA disk are backed up before installing into the N199.

Disk Information	
Item	**Description**
Disk Slot	Indicates disk location.
Capacity (MB)	Shows the SATA hard disk capacity.
Model	Displays the SATA hard disk model name.
Firmware	Shows the SATA hard disk firmware version.
Status	Indicates the status of the disk. Can read **OK**, **Warning**, or **Failed**.
Total	Shows the total SATA hard disk capacity.
File System Check	Click *Apply* to run a file system check on installed hard disks.

RAID Information

From the **Storage** menu, choose the *RAID* item and the **RAID Information** screen appears.

RAID Information	
Item	**Description**
RAID Level	Shows the current RAID configuration.
Total Capacity	Shows total capacity of the RAID configuration.
Status	Indicates status of the RAID. Can read either *Healthy* or *Failed*.
Used Percentage	Displays percentage of used RAID capacity.
Stripe Size*	Shows the current disk stripe size. *(Only with RAID 1 enabled)
Remaining Time*	Indicates time remaining until the RAID is finished building. *(Only with RAID 1 enabled)

To configure your RAID settings, press the *Config* button to go to the **RAID Configuration** screen.

RAID Configuration

On the **RAID Information** screen, press the *Config* button to go to the **RAID Configuration** screen. In addition to RAID disk information and status, this screen lets you make RAID configuration settings.

With one hard disk installed, JBOD is the default setting. If an eSATA hard disk is connected to the N199, the RAID 1 option is enabled.

For more information on RAID, see **Appendix C: RAID Basics**.

RAID Level

The storage volume can either read as **None**, **JBOD**, or **RAID 1**. RAID 1 is only available if an eSATA hard disk is properly connected. RAID configuration is usually required only when you first set up the device. A brief description of each RAID setting follows:

RAID Levels	
Level	**Description**
None	There is no existing storage volume.
JBOD	The storage volume is a single HDD with no RAID support. JBOD requires a minimum of 1 disk.
RAID 1	Offers disk mirroring. Provides twice the read rate of single disks, but same write rate. RAID 1 requires a minimum of 2 disks.

WARNING	If a hard disk is removed that shound not be removed when RAID status is degraded, all data will be lost.

Disk Settings

Using **Disk Settings**, you can select stripe size, choose which disks are RAID disks.

Disk Settings	
Item	**Description**
RAID	Check the boxes of the hard drives you wish to add to the storage volume.
Stripe Size	This sets the stripe size to maximize performance of sequential files in a storage volume. Keep the 64K setting unless you require a special file storage layout in the storage volume. A larger stripe size is better for large files.
Create RAID	Press this button to configure a file system and create the RAID storage volume.
Remove	Click to remove the RAID volume. All user data will be removed.

Creating a RAID

To create a RAID volume, follow the steps below:

1. On the **RAID Configuration** screen, set the RAID storage space as **JBOD**, **RAID 0**, or **RAID 1** — see **Appendix C: RAID Basics** for a detailed description of each.
2. Tick the checkboxes of the hard disks you wish to use to create a RAID.
3. Specify a stripe size — 64K is the default setting.
4. Press *Create* to build the RAID storage volume.

NOTE	Building a RAID storage space may take time, depending on the size of hard drives and RAID mode.

WARNING	Creating RAID destroys all data in the current RAID. The data is unrecoverable.

Deleting a RAID

To delete a RAID volume, follow the steps below:

1. On the **RAID Configuration** screen, click *Remove*.
2. The system automatically removes the RAID volume and you can create a new RAID.

WARNING	Removing RAID destroys all data in the current RAID. The data is unrecoverable.

Folder Management

From the **Storage** menu, choose *Folder*, and the **Folder** screen appears. This screen allows you to create and configure folders on the N199 volume.
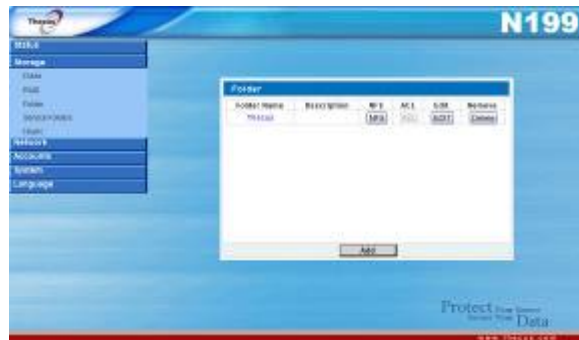
Folder	
Item	**Description**
Folder name	Displays the name of the folder.
Description	Provides a description of the folder.
NFS	Press **NFS** to setup access privilege.
ACL	Press *ACL* (Access Control List) to configure which users have access to this folder.
Edit	Press *Edit* to enter the **Edit** screen and modify the folder's name and description.
Remove	Press *Delete* to delete the folder. A screen appears asking to confirm the deletion.
Add	Press *Add* to enter the **Add Folder** screen.

25

Adding Folders

On the **Folder** screen, press the *Add* button and the **Add Folder** screen appears. This screen allows you to add a folder. After entering the information, press *Apply* to create new folder. Press *Back* to return to the **Folder** screen.
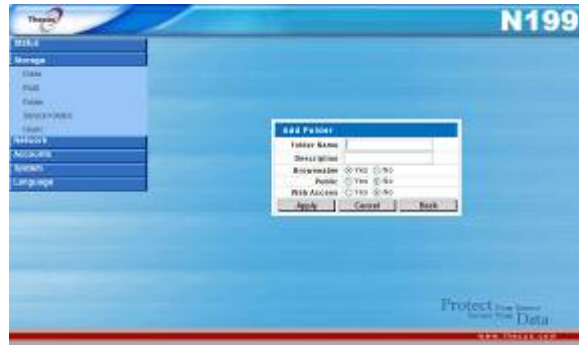
Add Folder	
Item	**Description**
Folder Name	Enter the name of the folder.
Description	Provide a description the folder.
Browseable	Enable users to browse the folder content.
Public	Admit or deny public access to this folder.
Web Access	Admin or deny access through web disk.
Apply	Press *Apply* to create the folder.
Reset	Press *Reset* to clear entered data.

NOTE	Folder names are limited to 60 characters. Systems running Windows 98 or earlier may not support file names longer than 15 characters.

Editing Folders

On the **Folder** screen, press the *Edit* button and the **Edit Folder** screen appears. This screen allows you to change folder information. After entering the information, press *Apply* to apply the changes. Press *Back* to return to the **Folder** screen.

Edit Folder	
Item	**Description**
Description	Provide a description the folder.
Browseable	Enable users to browse the folder content.
Public	Admit or deny public access to this folder.
Web Access	Admin or deny access through web disk.
Apply	Press *Apply* to save your changes.
Cancel	Press *Cancel* to disregard entered data
Back	Press *Back* to return to upper page.

Deleting Folders

To delete a folder, press the *Del* button from the specified folder row. The system will confirm folder deletion. Press *OK* to delete the folder permanently or *Cancel* to go back to the folder list.

WARNING	All the data stored in the folder will be deleted once the folder is deleted. The data will not be recoverable.

Folder Access Control List (ACL)

On the **Folder** screen, press the *ACL* button, and the **Folder Access Control List (Folder ACL)** screen appears. This screen allows you to configure access to the specific folder for users and groups. Use the *Read only*, *Writable, Deny access*, or *Unset* radio buttons to configure access levels for listed users and groups. Press the *Apply* button to confirm your settings.
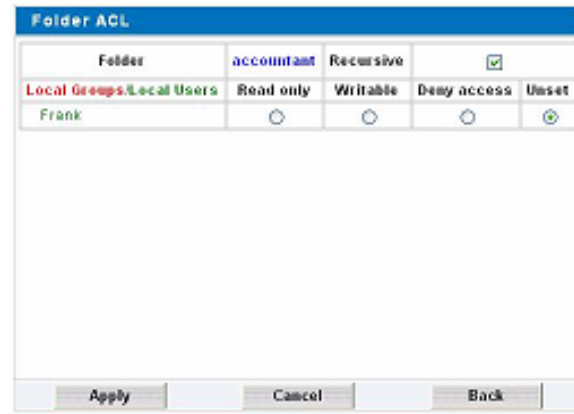
Folder ACL	
Item	**Description**
Folder	Current folder name
Recursive	Check this box if you want your settings to also apply for all subfolders in current folder.
Local Groups/Local Users	Names of local groups and local users. Local groups are displayed in red, while local users are displayed in green.
Read Only	Provides Read Only access to users or groups.
Writable	Provides Write access to users or groups.
Deny	Denies access to users or groups.
Unset	Resets current user's/group's access privilages.
Apply	Click *Apply* to save your changes.
Cancel	Click *Cancel* to exit without saving changes.
Back	Click *Back* to return to the **Folder** screen.

Service Folders

The N199 automatically creates folders for its built-in applications.

To manage these service folders, select *Service Folder* from the **Storage** menu. Press *NFS* to setup access privilege. Press *Edit* to edit these folders. Press *ACL* to control access to these folders via the **Access Control List**.

Service Folders	
Folder Name	**Description**
Photos	Default directory for your photos.
Video	Default directory for your video files.
Music	Music for the iTunes Server is located here. The iTunes server will share the music located in this directory.
USBCopy	Contents copied from the One-Touch USB Copy function are stored here.
USBHDD	Contents copied from USB hard disks are stored here.
USBCam	Stored still frames from the Simple Surveillance Server are stored here.

Network Management

Use the **Network** menu to make network configuration settings as well as service support settings.

LAN Configuration

From the **Network** menu, choose *LAN*, and the **LAN Configuration** screen appears. This screen displays the network parameters of the WAN connection. You may change any of these items and press *Apply* to confirm your settings. You can see a description of each item in the following table:

WAN Configuration	
Item	**Description**
Host name	Host name that identifies the N199 on the network.
Domain name	Specifies the domain name of the N199.
MAC Address	Display the WAN port MAC address.
Jumbo Frame Support	Enable or disable Jumbo Frame Support of the WAN interface on your N199.
Connection Type	The LAN IP can be set to a Static IP, Dynamic IP, or PPPoE. **Static:** Administrator has to enter IP, Netmask, Gateway, DNS Server fields. **Dynamic:** If there is already a DHCP server on your network, you can let the DHCP server assign an IP address to your N199. NOTE: If this is set to Dynamic, but a DHCP server is not detected on the LAN network, the IP address of the N199 will reset to the default setting of `192.168.1.100`. **PPPoE:** The N199 can also support a direct connection to an ASDL modem through PPPoE. Once selected, you will need to enter a User Name and Password.
User Name	Enter your user name for PPPoE connection. (PPPoE only)
Password	Enter your password for PPPoE connection. (PPPoE only)
IP	IP address of the WAN interface.
Netmask	Network mask, which is generally: `255.255.255.0`
DNS Server	Domain Name Service (DNS) server IP address.
IP Sharing Mode	When enabled, traffic on the LAN will be directed to the WAN. Default is **Disabled**.
PPPoE Connect	Connect or disconnect from a PPPoE connection. (PPPoE only)

NOTE	• Only use Jumbo Frame settings when operating in a Gigabit environment where all other clients have Jumbo Frame Setting enabled. • Enabling DHCP automatically turns on UPnP — See the **Service Support** Screen. • If you are only using the WAN port, we suggest that you disable IP Sharing Mode. This will result in higher throughput. • A correct DNS setting is vital to networks services, such as SMTP and NTP.

WARNING	Most Fast Ethernet (10/100) Switches/Routers do not support Jumbo Frame and you will not be able to connect to your N199 after Jumbo Frame is turned on. If this happens, turn off the N199. Then, power on the N199 and immediately press and hold the Reset button on the front of the unit for 10 seconds. This will reset your network settings, password, and turn off Jumbo Frame Support.

WLAN Configuration

When a compatible wireless USB dongle is installed on the N199, the N199 will become an access point, and the **Network** dropdown menu will contain a **WLAN AP** menu item. From the **Network** menu, choose *WLAN AP*, and the **WLAN Configuration** screen appears. This screen displays the wireless network parameters of the system. You can to change any of these items and press *Apply* to confirm your settings.

WLAN Configuration

Item	Description
MAC Address	Displays the MAC Address of the USB wireless dongle.
IP	Specifies the IP address of the network connection.
Netmask	Specifies the network mask, which is generally: `255.255.255.0`
SSID	The SSID (Service Set Identification) is the identifying name of a wireless network.
Channel	The channel that the N199 uses to communicate with client devices.
Mode	Select which wireless mode the N199 should use.
ESSID Broadcast	Specifies whether the ESSID will be broadcasted by the N199. This will prevent the Access Point from broadcasting the ESSID. The N199 will still respond to a wireless device that LAN1ts to communicate if it sends a matching ESSID.
Safe Stat	Specifies whether to use encryption for transmission or not.
Safe Type	Type of authentication to be used.
Safe Choice	Authentication mode used by the N199. **Shared:** Shared key authentication **Open:** Open key authentication
Key Form	The type of key used can be either **HEX** or **ACSII**.
WEP KEY 1	Input up to 4 WEP keys, and select the one you wish to use. When connecting, be sure to enter the same key and select the same index number on each client machine.
WEP KEY 2	
WEP KEY 3	
WEP KEY 4	

A DHCP server can be configured to assign IP addresses to wirelessly connected devices.

DHCP Server Configuration

Item	Description
DHCP Server	Select to enable or disable DHCP server.
Start IP	Specifies the starting IP address of the DHCP range.
End IP	Specifies the ending IP address of the DHCP range.
DNS Server	Specifies the DNS server IP address.

**NOTE**

Users should obey the international RF regulatory rules as they set up the wireless RF channel on the N199. The RF operating channels for different regions have been specified as following. Thecus has no responsibility for users attempting to violate the international RF regulation.

11	N. America
14	Japan
13	Europe (ETSI)
2	Spain
4	France

Web Services Configuration

From the **Network** menu, choose the *Services* item, and the **Web Service** screen appears. This screen displays the service support parameters of the system. You can change any of these items and press *Apply* to confirm your settings. A description of each item follows:
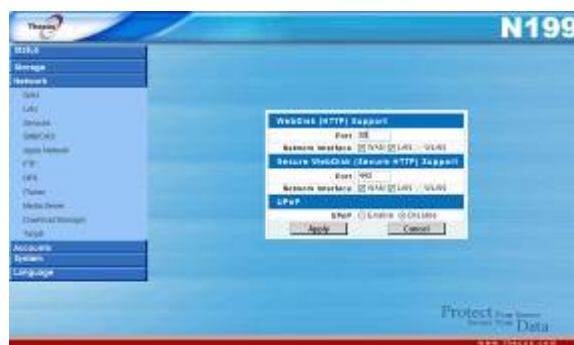
Web Service	
Item	**Description**
HTTP (WebDisk) Support	Enable or disable WebDisk support. Enter the port number if this option is enabled.
HTTPs (Secure WebDisk) Support	Enable or disable Secure WebDisk support. Enter the port if this option is enabled.
UPnP	Enable or disable Universal Plug and Play protocol. UPnP helps to find the IP address of the N199.

NOTE Disable HTTP support and Enable Secure HTTP support to guarantee secure access.

Windows Network Configuration (SMB/CIFS)

The N199 can act as a Samba server, enabling users to share files using the SMB/CIFS protocol. From the **Network** menu, choose the *SMB/CIFS* item, and the **SMB/CIFS** screen appears. You can change any of these items and press *Apply* to confirm your settings. A description of each item follows:
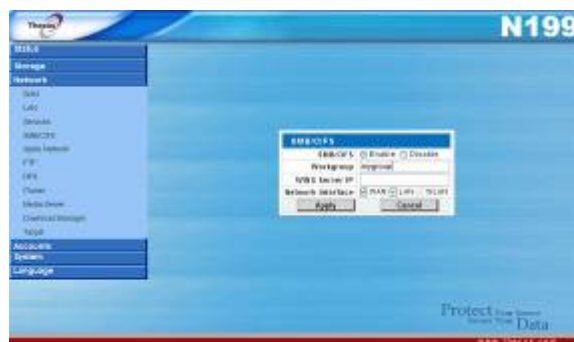
SMB/CIFS	
Item	**Description**
Sharing	If you are using Microsoft Windows®, enable this service to access the files on the N199 by mapping a network drive.
WINS Server	Specify the WINS server IP address, if your network has a WINS server installed. The N199 will automatically register its name and IP address with WINS service.
Work Group / Domain Name	Enable or disable SMB/CIFS protocol for Windows, Apple, Unix drive mapping.

NOTE
- SMB/CIFS service also allows file sharing from Mac OSX and Linux platforms.
- Once a Mac OS accesses a share folder, it will create a file named .DS_Store, and directories named Temporary items, Network Trash Folder, .Apple Double, Apple Desktop and AppleDB in the share folder.

Apple Network Setup

From the **Network** menu, choose the *Apple Network* item, and the **Apple Network Configuration** screen appears. This screen displays the configuration items for the Apple Filing Protocol. You can change any of these items and press *Apply* to confirm your settings. A description of each item follows:

| Apple Network Configuration	
Item	**Description**
Apple File Service	Enable Apple File Service to use the N199 on MAC OS-based system.
MAC CHARSET	If your operating system does not support Unicode (e.g. MAC OS9/8), select the same language as your OS here in order to properly view the files and directories on the server.
Zone	Specifies Zone for Applet Talk service. If your AppleTalk network uses extended networks and is assigned with multiple zones, assign a zone name to the N199. If you do not Want to assign a network zone, enter an asterisk (*) to use the default setting.

NFS Setup

From the **Network** menu, choose the *NFS* item, and the **NFS** server setting screen appears. The N199 can act as a NFS server, enabling users to download and upload files with their favorite NFS clients. Make your changes, and then click *Apply* to save them. Click *Cancel* to return to the main menu.
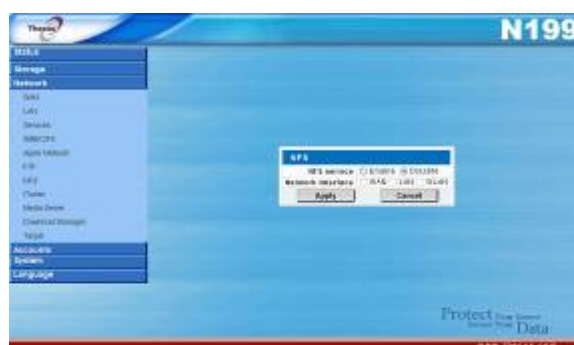
NFS	
Item	**Description**
NFS Service	Enable or disable NFS support
Network Interface	Select the network interface for NFS service.

User and Group Management

The N199 has built-in user database that allows administrators to manage user access using different group policies. From the **Accounts** menu, you can create, modify, and delete users, and assign them to groups that you designate.

Local User Configuration

From the **Accounts** menu, choose the **Users** item, and the **Local User Configuration** screen appears. This screen allows you to **Add**, **Modify**, and **Delete** local users.

You can quickly find a particular user name by clicking one of the letter groupings at the top of the window. For example, to find a user name beginning with the letter M, click the **MNO** user group, and the user names beginning with M, N, or O will be listed. To see all names, click *ALL*.
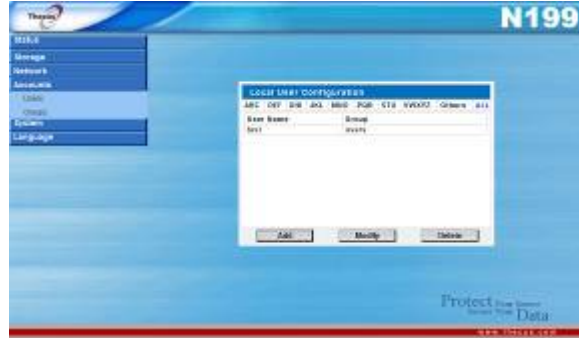
Local User Configuration	
Item	**Description**
User Name	Current user name.
Group	Group membership of current user name.
Add	Press the *Add* button to add a user to the list of local users.
Modify	Press the *Modify* button to modify a local user.
Delete	Press the *Delete* button to delete a selected user from the system.

Adding Users

1. Click on the *Add* button on **Local User Configuration** screen, and **Add NEW Local User** screen appears.

2. Enter a name in the **User Name** box.

3. Enter a password in the **Password** box and re-enter the password in the **Confirm Password** box.

4. Select which group the user will belong to. The **Owner Group** list is a list of groups this user belongs to. The **Unjoined Group** list is a list of groups this user does not belong to. Use the **<<** or **>>** buttons to have this user join or leave a group.

5. Press the *Apply* button and the user is created.
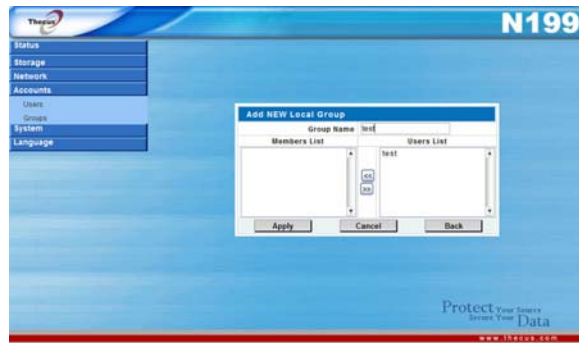
> **NOTE**   All users are automatically assigned to the 'users' group.

Modifying Users

1. Select an existing user from the **Local User Configuration** screen.

2. Click on the *Modify* button, and **Local User Setting** screen appears.

3. From here, you can enter a new password and re-enter to confirm, or use the **<<** or **>>** buttons to have this user join or leave a group. Click the *Apply* button to save your changes.
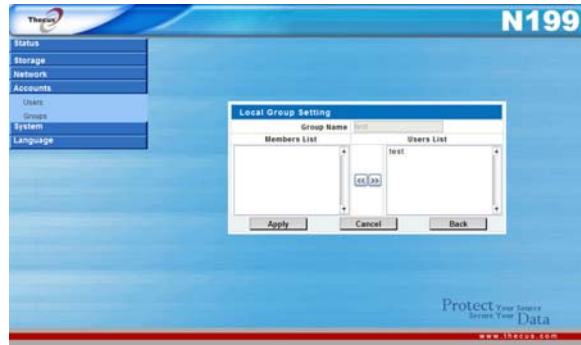
Deleting Users

1. Select an existing user from the **Local User Configuration** screen.

2. Click on *Delete* button and the user is deleted from the system.

Local Groups Configuration

From the **Accounts** menu, choose the *Groups* item, and the **Local Group Configuration** screen appears. This screen allows you to **Add**, **Modify**, and **Delete** local groups.

You can quickly find a particular group by clicking one of the letter groupings at the top of the window. For example, to find a user name beginning with the letter M, click the *DEF* letter group, and the groups beginning with M, N, or O will be listed. To see all groups, click *ALL*.
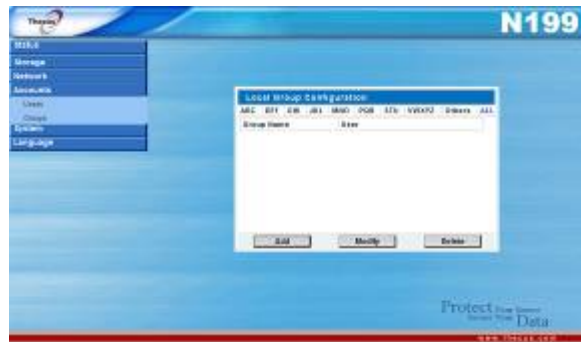
Local Groups Configuration	
Item	**Description**
Group Name	Current group name.
User	Users currently in current group.
Add	Press the *Add* button to add a user to the list of local groups.
Modify	Press the *Modify* button to delete a selected group from the system.
Delete	Press the *Delete* button to delete a selected group from the system.

Adding Groups

1. On the **Local Group Configuration** screen, click on the *Add* button.

2. The **Add NEW Local Group** screen appears.

3. Enter a **Group Name**, and select users to be in this group from the **Users List** by adding them to the **Members List** using the **<<** button.

4. Click the *Apply* button to save your changes.
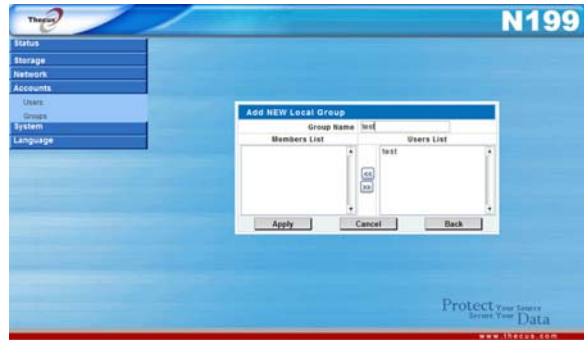
Modifying Groups

1. On the **Local Group Configuration** screen, select a group name from the list.

2. Press the *Modify* button and the Local Group Setting screen appears.

3. To add a user into a group, select the user from the **Users List**, and press the **<<** button to move the user into the **Members List**.

4. To remove a user from a group, select the user from **Members List**, and press the **>>** button.

5. Click the *Apply* button to save your changes.
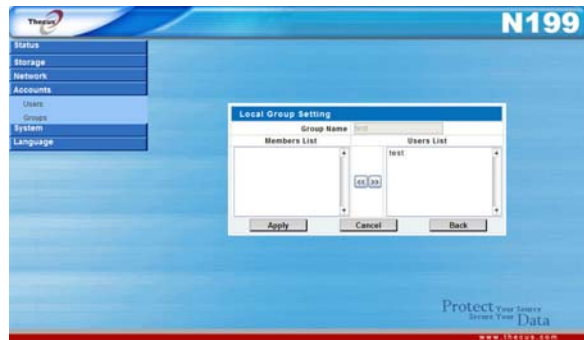
Deleting Groups

1. On the **Local Group Configuration** screen, select a group name from the list.

2. Press *Delete* to delete the group from the system.

System Management

The **System** menu gives you a wealth of settings that you can use to configure your N199's system administration functions. You can set up system notifications, view system logs, and even upgrade firmware from this menu.

System Notifications

From the **System** menu, choose the *Notification* item, and the **Notification Configuration** screen appears. This screen lets you have the N199 notify you in case of any system malfunction. Press *Apply* to confirm all settings. See following table for a detailed description of each item.
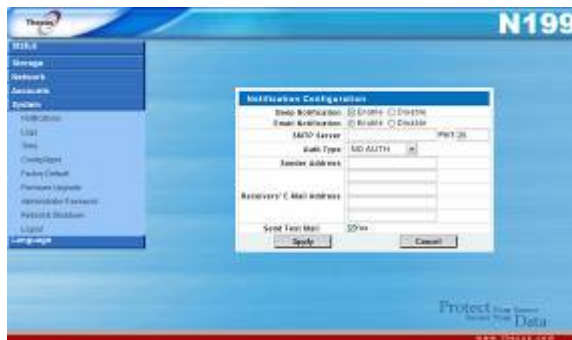
Notification Configuration	
Item	**Description**
Beep Notification	Enable or disable the system beeper that beeps when a problem occurs.
Email Notification	Enable or disable email notifications of system problems.
SMTP Server	Specifies the hostname/IP address of the SMTP server.
Port	Specifies the port to send outgoing notification emails.
Auth Type	Select the SMTP Server account authentication type.
Sender Address	Set the sender mail address.
Sender Password	Enter the password for the sender's mail account.
Confirm Password	Confirm a new password.
Receivers' E-mail Address	Add one or more recipient's email addresses to receive email notifications.
Send Test Mail	Click to send out a test e-mail to make sure the settings are correct.

NOTE   Consult with your mail server administrator for email server information.

System Logs

From the **System** menu, choose the **Logs** item and the **System Logs** screen appears. This screen shows a history of system usage and important events such as disk status, network information, and system booting. See the following table for a detailed description of each item:
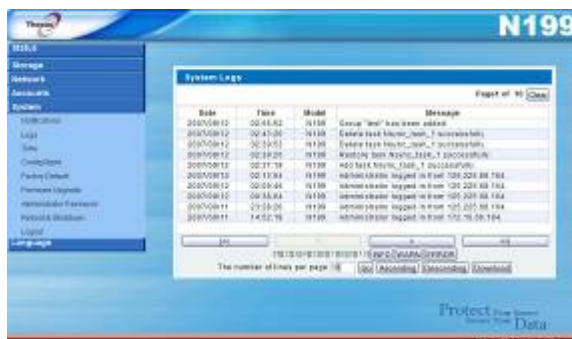
System Logs	
Item	**Description**
Truncate All Log File	Clear all log files.
|<< < > >>|	Use the forward (> >>|) and backward (|<< <) buttons to browse the log pages.
INFO	Provides all log information including warning messages and error messages.
WARN	Shows all warning messages and error messages.
ERROR	Shows only error messages.
GO	Specify the number of lines per page and press Go.
Ascending	Shows logs by date in ascending order.
Descending	Shows logs by date in descending order.
Download All Log File	Export all logs to an external file.

Time and Date Settings

From the **System** menu, choose the **Time** item and the **Time** screen appears. Set the desired **Date**, **Time**, and **Time Zone**. You can also elect to synchronize the system time on the N199 with an **NTP (Network Time Protocol) Server**. You can change any of these items and press *Apply* to confirm your settings. See the following table for a detailed description of each item:

Time	
Item	**Description**
Date	Sets the system date.
Time	Sets the system time.
Area	Select your area.
City	Select your city.
NTP Server	Select *Yes* to allow the N199 to synchronize with the NTP server shown below. Select *Maually* to allow the N199 to synchronize with an NTP server of your choice. Select *No* to not have the N199 to synchronize with an NTP server.

WARNING If an NTP server is selected, please make sure your N199's network has been setup to access the NTP server.

System Configuration Backup and Restore

From the **System** menu, choose the *Config Mgmt* item and the **System Configuration Download/Upload** screen appears. From here, you can download or upload stored system configurations. See the following table for a detailed description of each item.
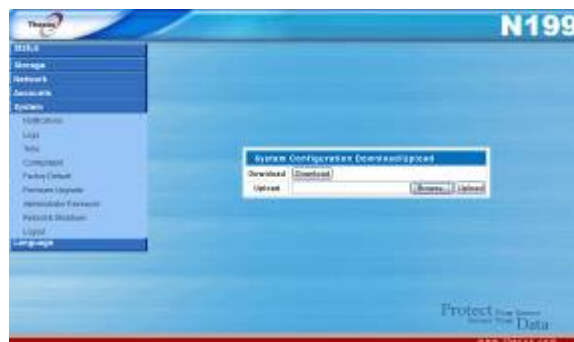
System Configuration Download/Upload	
Item	**Description**
Download	Save and export the current system configuration.
Browse	Click to browse the folder of your PC to locate the configuration files.
Upload	Import a saved configuration file to overwrite current system configuration.

NOTE	Backing up your system configuration is a great way to ensure that you can revert to a working configuration when you are experimenting with new system settings.

Reset to Factory Default Settings

From the **System** menu, choose the *Factory Default* item and the **Reset to Factory Default** screen appears. Press *Apply* to reset the N199 to factory default settings. Press *Cancel* to go back to the main menu.
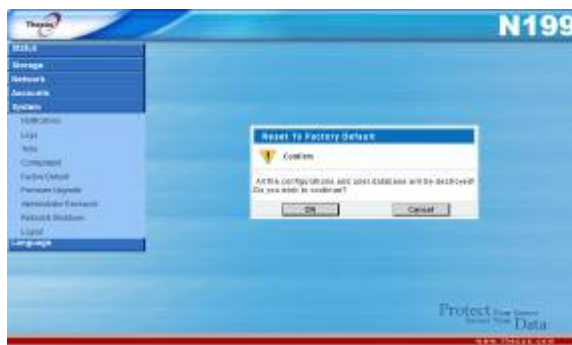
WARNING	Resetting to factory defaults will not erase the data stored in the hard disks, but WILL revert all the settings to the factory default values.

Upgrading System Firmware

From the **System** menu, choose the *Firmware Upgrade* item and the **Firmware Upgrade** screen appears.

Follow the steps below to upgrade your firmware:

1. Use the *Browse* button to find the firmware file.

2. Press *Apply*.

3. The beeper beeps and the Busy LED blinks until the upgrade is complete.

NOTE	• The beeper only beeps if it is enabled in the System Notification menu. • Check Thecus website for the latest firmware release and release notes.

Change Administrator Password

From the **System** menu, choose the *Administrator Password* item and the **Change Administrator Password** screen appears. Enter a new password in the **New Password** box and confirm your new password in the **Confirm Password** box. Press *Apply* to confirm password changes. See the following table for a detailed description of each item.

Change Administrator Password	
Item	**Description**
Old Password	Type in the current administrator password.
New Password	Type in a new administrator password.
Confirm Password	Type the new password again to confirm.
Apply	Press this to save your changes.

Reboot and Shutdown System

From the **System** menu, choose **Reboot & Shutdown** item, and the **Shutdown/Reboot System** screen appears. Press *Reboot* to restart the system or *Shutdown* to turn the system off.
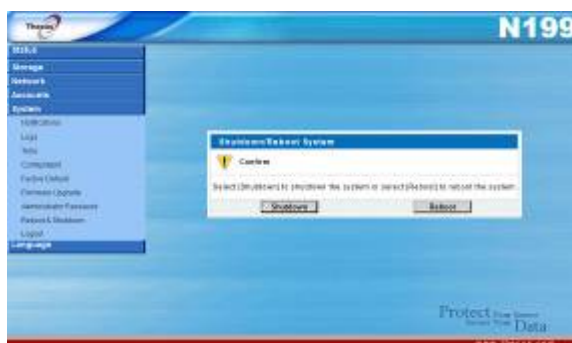
Logout

To logout of the Web Administration Interface, navigate to **System** > *Logout*.

Chapter 4: Additional Feature Setup

Overview

With a bevy of additional features and services, the N199 is so much more than a mere external hard disk. The sections below show you how you can utilize your N199 to serve files, music, movies, pictures, and more.

FTP Server

N199 can act as a FTP server, enabling users to download and upload files with their favorite FTP programs. From the **Network** menu, choose the *FTP* item, and the **FTP** screen appears. You can change any of these items and press *Apply* to confirm your settings. A description of each item follows:

FTP	
Item	**Description**
FTP	Enable FTP Service on the N199.
FTP ENCODE	If your FTP client or operating system does not support Unicode (e.g. Windows® 95/98/ME or MAC OS9/8), select the same encoding as your OS here in order to properly view the files and directories on the server. Available options are BIG5, HZ, GB2312, GB18030, ISO, EUC-JP, SHIFT-JIS and UTF-8.
Port	Specifies the port number of an incoming connection on a non-standard port.
Allow Anonymous FTP Access	**Upload/Download:** Allow anonymous FTP users to upload or download files to/from public folders. **Download:** Allow anonymous FTP users to download files from public folders. **No access:** Block anonymous FTP user access.
Network Interface	Select which network interface the FTP server will use. **LAN** or **WLAN** can be selected.

> **NOTE** Anonymous users are not able to delete files on the N199. To delete files, users must login and be granted write access on the Access Control List.

To access the share folder on the N199, use the appropriate user login and password set up on the **Local User Configuration** page (*Accounts* > *Users*). Access control to each share folder is set up on the **ACL** page (*Storage* > *Folder* > *ACL*).

When trying to access N199 anonymously, just enter "**anonymous**" as the user name.

iTunes® Server

With the built-in iTunes server capability, the N199 enables digital music to be shared and played anywhere on the network!

From the **Network** menu, choose the *iTunes* item, and the **iTunes Configuration** screen appears. You may enable or disable the iTunes Service from here. Once enabled, enter correct information for each field and press *Apply* to save your changes. See the following table for detailed descriptions of each field:

iTunes Configuration	
Item	**Description**
iTunes	Enable or disable the iTunes Server.
Server Name	Name used to identify the N199 to iTunes clients.
Password	Enter password to control access to your iTunes music.
Rescan Interval	Rescan interval in seconds. You can click *Rescan Now* to rescan immediately.
MP3 Tag Encode	Specify tag encoding for MP3 files stored in N199. All ID3 tags will be send out in UTF-8 format.

Once the iTunes service is enabled, the N199 will make all music located in the **Music** folder available for iTunes-equipped computers on the network.

Media Server

With the built-in Media Server capability, the N199 provides media streaming service to stand-alone networked home media adapters that support the UPnP AV protocol. You can share digital media such as music, pictures, and movies with any compatible device throughout your entire home.
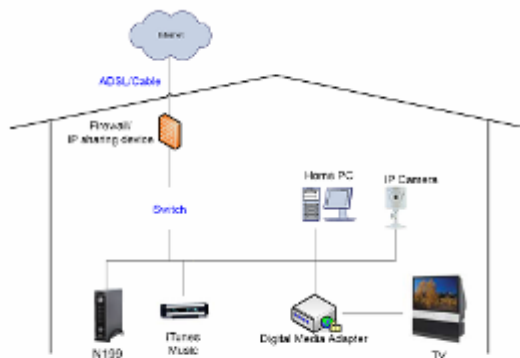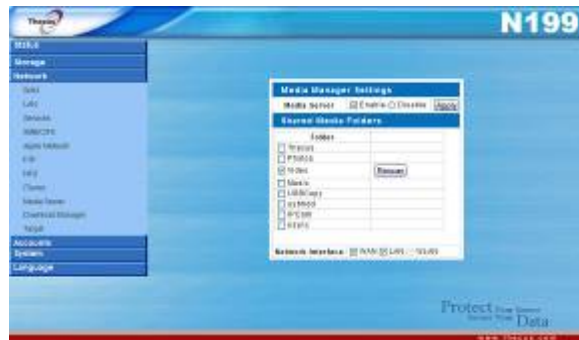
Media Manager Settings	
Item	**Description**
Media Server	Enable or disable the Media Server service. Click
Shared Media Folders	Select the folder(s) that contains media files to be shared. By default, these include: • Photos • Video • Music • USBCopy • USBHDD • USDCam
Enabled on	With this setting, you can choose if the shared media folders are available via WAN, LAN, or WAN. Check the appropriate boxes to access your shared media folders through selected connections.

Adding Media Share Folders

Once the Media Server software is installed, you can start adding folders that contain the media that you would like to share. To create a media share folder, follow the steps below:

1. Click on *Network* > *Media Server* in the menu bar.

2. Select the folder that contains your media files, and click the checkbox.

3. The contents in the folder will be scanned for the Media Server. The time required for scanning depends on the size of the folder.

Connecting DMAs to the Media Server

Next, it's time to connect your Digital Media Adapter (DMA) to the media server:

1. Connect your DMA to your Media Server

   a. Configure your DMA to use a Dynamic IP address. The IP address will be assigned by the router.
   b. Some DMAs are wireless enabled. You can connect the DMA to a wireless router. For instructions on how to connect your DMA to a wireless router, please refer to your DMA's user manual.

2. Connect your DMA's video output to video input of your TV set.

3. Turn on the TV and change the video signal input to DMA.

4. Setup the DMA (These steps will be different if you use a different DMA)

   a. From the Server List screen, select "**N199:Mediabolic Server**" as the server.
   b. Go to **My Media**
   c. Click on the **Up/Down Arrow** buttons to select **Music Jukebox**, **Photo Albums**, or **Video Clips**
   d. Start enjoying the contents stored in your N199.

Download Manager

With the built-in Download Manager, you can have the N199 download HTTP, FTP, and BT files without having full PC powered on. What's more, you can even schedule your downloads for off-peak hours, ensuring efficient use of bandwidth.
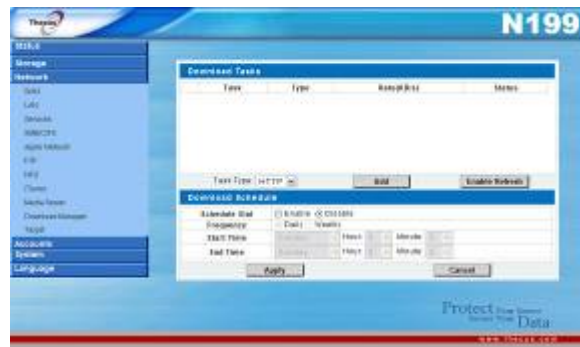
Download Tasks	
Item	**Description**
▶	Click to start the specified task.
⏸	Click to pause the specified task.
✖	Click to delete the specified task. A prompt will appear asking you if you would like to delete the task itself, or the task and all related downloaded files.
Task	Name of the task. Click to see more information about this task.
Type	Type of transfer. Can read **HTTP**, **FTP**, or **BT**.
Rate	Transfer rate of the task in kilobytes per second (KB/s). **DL:** Download rate **UL:** Upload rate
Status	Status of the task. **Complete:** Percentage complete (%) **Completed / Total download size**
Task Type	Use this dropdown to select the type of transfer. **HTTP**, **FTP**, and **BT** are available.
Add Task	Click to add the kind of task specified beside "**Task Type**".
Enable Refresh	Click to refresh the task list.

Adding an HTTP Task

To add a new HTTP task to the Download Manager, follow these steps:

1. Using the **Task Type** dropdown, select *HTTP* and click *Add*.
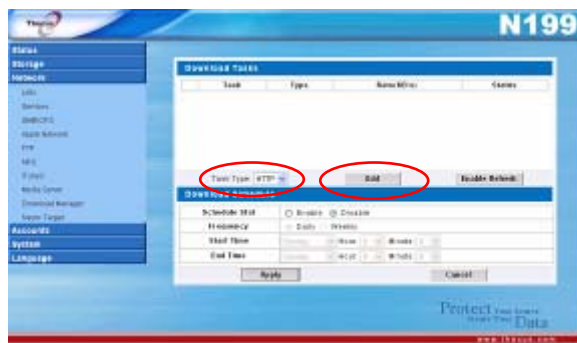
2. In the **HTTP Task** window, start by inputting the target URL in the **Website URL** box. This is the link to the download you want to queue.
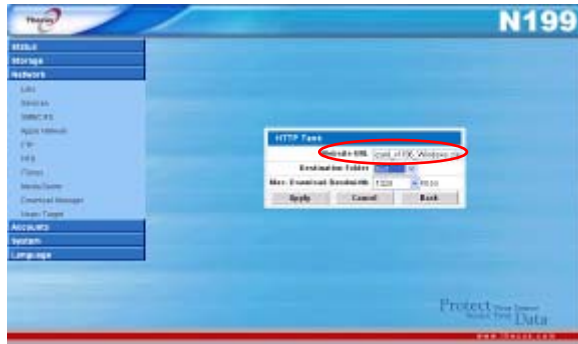
3. Next, select the destination folder from the **Destination Folder** dropdown. This is where the download will reside.
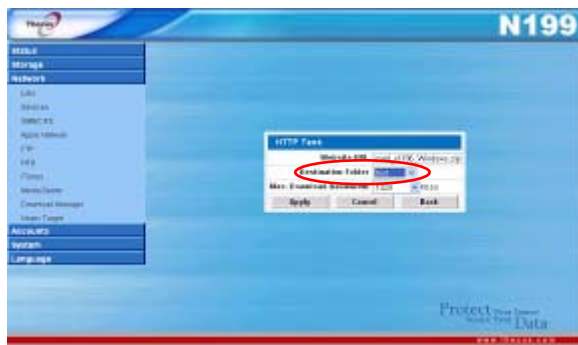
4. Select the maximum download bandwidth from the **Max. Download Bandwidth** dropdown.
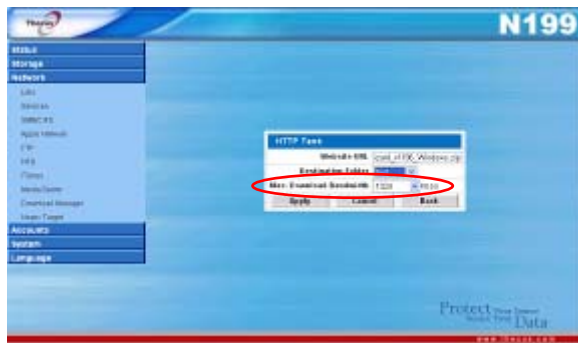
5. Press *Apply* to add the task.

6. Once added, your download will appear in the list of download tasks. To start the download, simply click the **Start** icon (▶) and the download will begin.
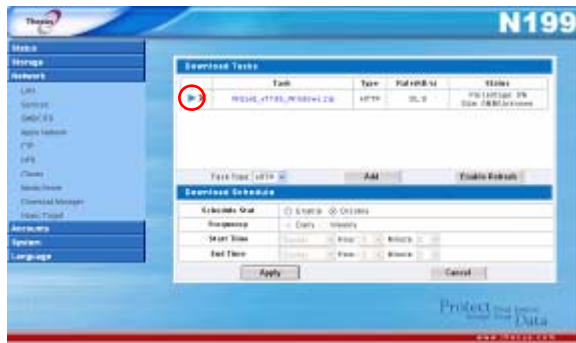
7. The following prompt will be shown when the download begins:

8. The download status will continually update in the **Download Tasks** window. To pause the download, click the **Pause** icon (❚❚).
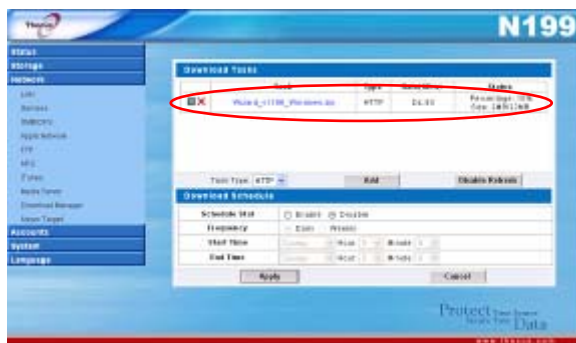
Adding an FTP Task

To add a new FTP task to the Download Manager, follow these steps:

1. Using the **Task Type** dropdown, select *FTP* and click *Add*.
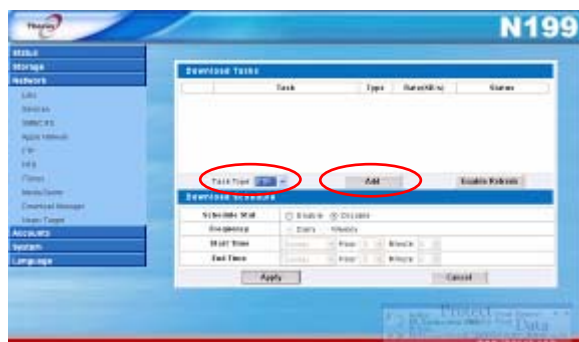
2. In the **FTP Task** window, start by inputting the target URL in the **FTP File** box. This is the link to the download you want to queue.
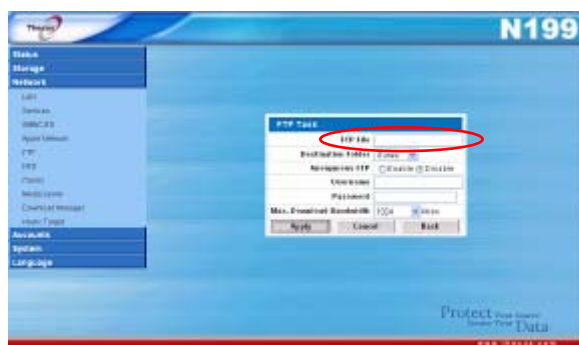
3. Next, select the destination folder from the **Destination Folder** dropdown. This is where the download will reside.
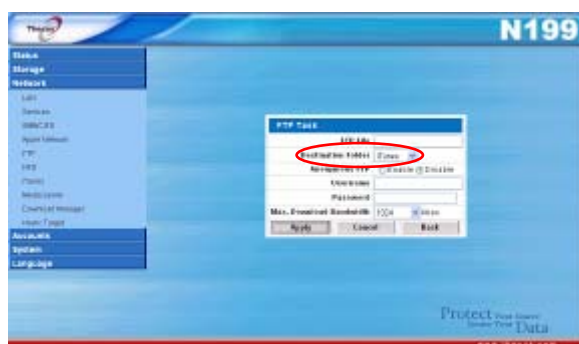
4. The next step depends if you are using an anonymous login for your FTP download. If you are logging in anonymously, select *Enable* and move on to step 5.
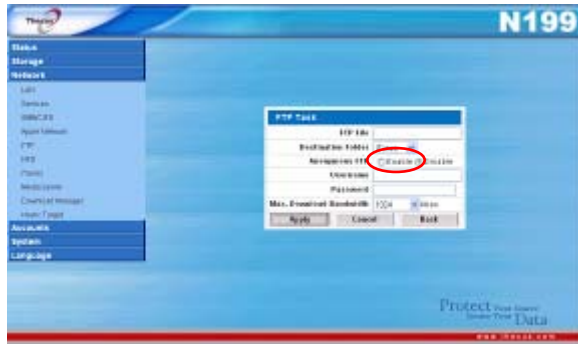
If you are required to login with a user name and password, set
Anonymous FTP to *Disable* and input your user name and password into
the appropriate fields.
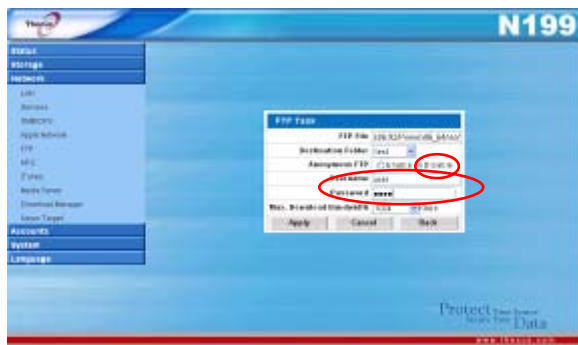
5. Select the maximum download bandwidth from the **Max. Download
Bandwidth** dropdown.
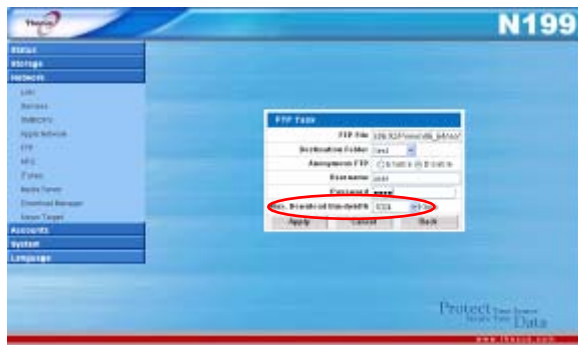
6. Press *Apply* to add the task.

7. Once added, your download will appear in the list of download tasks. To start the download, simply click the **Start** icon (▶) and the download will begin.
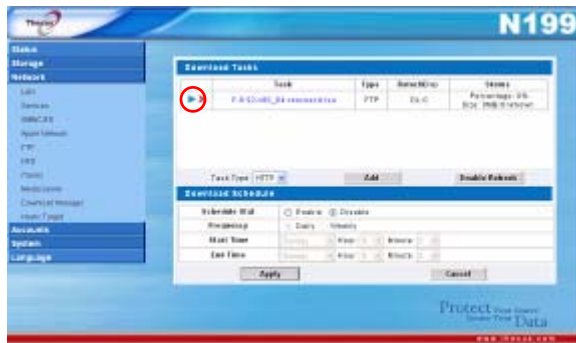
8. The following prompt will be shown when the download begins:

9. The download status will continually update in the **Download Tasks** window. To pause the download, click the **Pause** icon (▮▮).
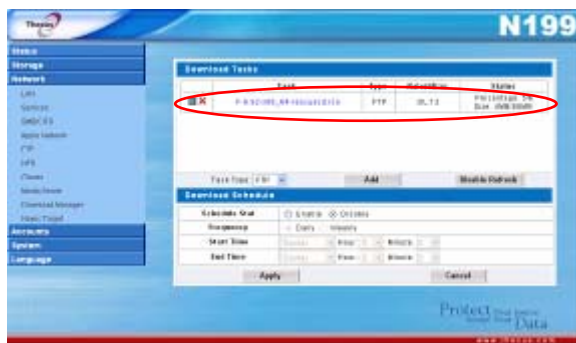
Adding a BT Task

To add a new BT task to the Download Manager, follow these steps:

1. Using the **Task Type** dropdown, select *BT* and click *Add*.
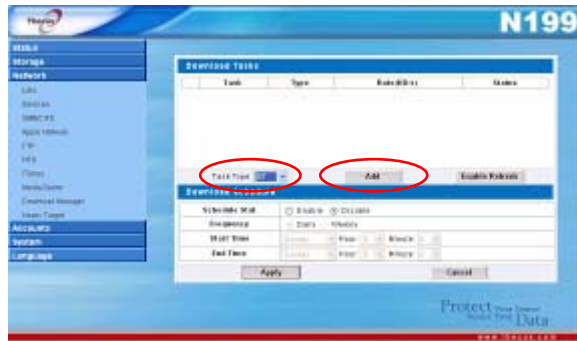
2. In the **BT Task** window, start by clicking *Browse...* and selecting the torrent file you wish to start.
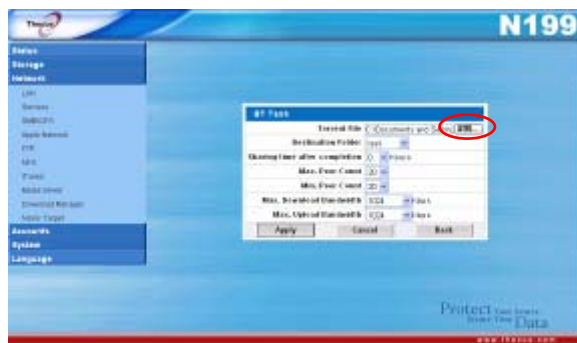
3. Next, select the destination folder from the **Destination Folder** dropdown. This is where the download will reside.
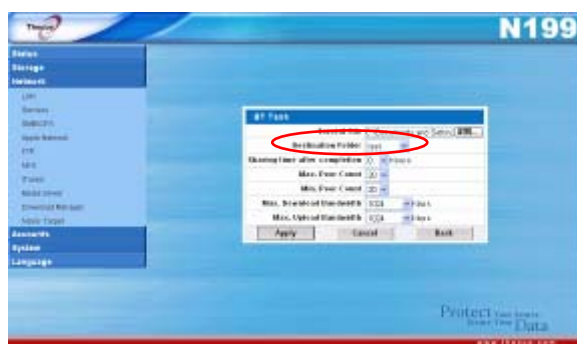

4. Next, you can designate the **Sharing time after completion** by selecting the number of hours from the dropdown.
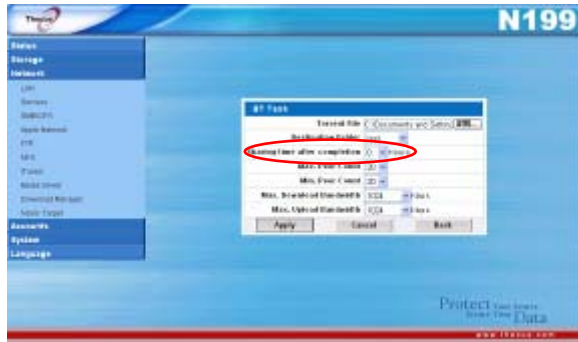
5. Next, you can select the maximum and minimum number of peers from selecting the counts from the appropriate dropdowns.
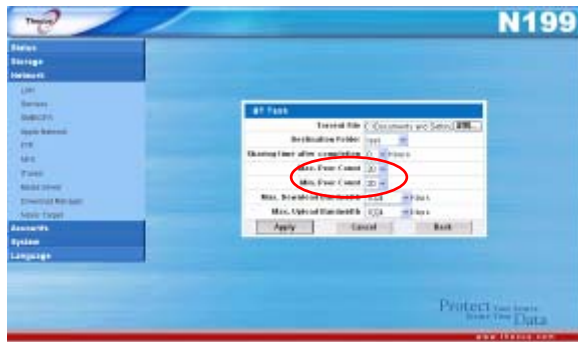
6. Next, you can set the maximum download and upload bandwidths from the dropdowns below.
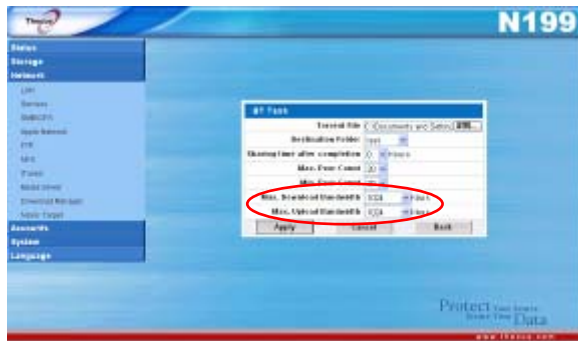

7. Press *Apply* to add the task.

8. Once added, your download will appear in the list of download tasks. To start the download, simply click the **Start** icon (▶) and the download will begin.
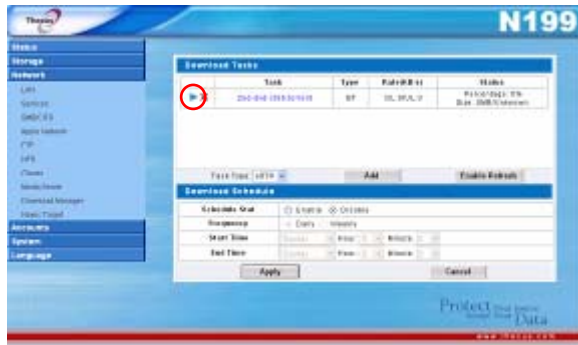
9. The following prompt will be shown when the download begins:

10. The download status will continually update in the Download Tasks window. To pause the download, click the **Pause** icon (⏸).
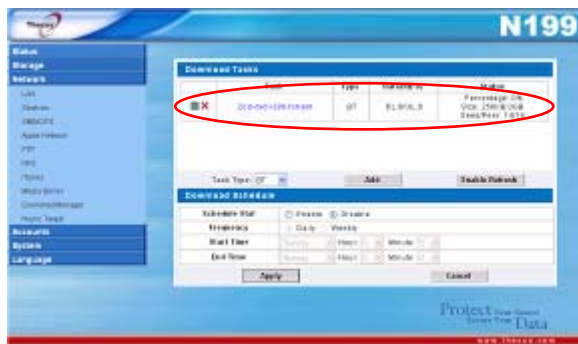

Deleting Tasks

To delete a task, simply follow the steps below:

1. Click the delete icon (✗) beside the task that you wish to delete. The **Delete Task** dialogue box will appear.

2. Select *Delete Task only* if you wish to remove only the torrent file and all transient files, leaving the unfinished download files intact.

3. Select *Delete Task and Files* if you wish to remove the torrent file and all transient files, and the unfinished download files.

4. Click *OK* to delete the task. Click *Cancel* to return to the **Download Manager**.

Scheduling Downloads

You can schedule your downloads to begin at different times of the day. This is useful if you wish to complete your downloads during off-peak hours, reserving your bandwidth for other applications. A table describing the **Download Schedule** window appears below:

Download Schedule	
Item	**Description**
Schedule Stat	Enable or disable the Download Scheduler.
Frequency	Choose to have the Download Scheduler activate on a daily or weekly basis.
Start Time	Specify the start day/hour/minute for the download task.
End Time	Specify the end day/hour/minute for the download task.

To schedule downloads, follow these steps:

1. Under **Download Schedule**, set **Scheduler** to *Enable*.
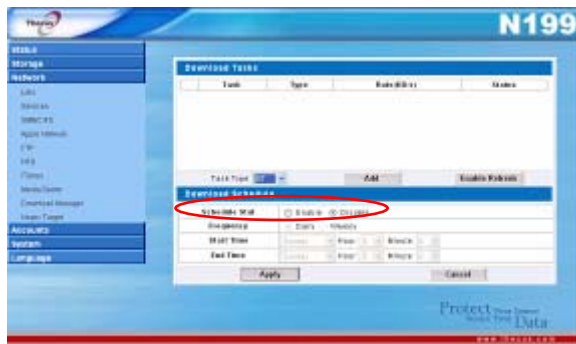
2. To schedule a daily download period, select *Daily* and select a start time and end time.

   To schedule a weekly download period, select *Weekly* and select a start day/time and end time/day.
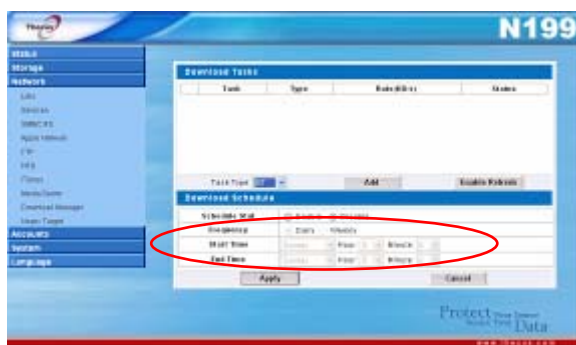
3. Click *Apply* to save your changes.

NOTE	If the Download Scheduler is enabled, ALL download tasks will adhere to the designated schedule.

Printer Server

You can configure the N199 to act as a printer server. That way, all PCs connected to the network can utilize the same printer. From the **Status** menu, choose the Printer item, and the **Printer information** screen appears. To setup in either Windows XP or Vista, please refer the following for steps.

Windows XP SP2

1. Connect the USB printer to one of the USB ports (preferably the rear USB ports; front USB ports can be used for external HDD enclosures).

2. Go to *Start* > *Printers and Faxes*.

3. Click on **File** > **Add Printer**.

4. The **Add Printer Wizard** appears on your screen. Click *Next*.

5. Select the "*A network printer, or a printer attached to another computer*" option.

6. Select "*Connect to a printer on the Internet or on a home or office network*", and enter "`http://N199_IP_ADDRESS:631/printers/usb-printer`" into the URL field.

7. Your Windows system will ask you to install drivers for your printer. Select correct driver for your printer.

8. Your Windows system will ask you if you want to set this printer as "Default Printer". Select *Yes* and all your print jobs will be submitted to this printer by default. Click *Next*.

9. Click *Finish*.

NOTE	• Not all USB printers are supported. Please check Thecus website for a list of supported printers. • Note that if a multi-function (all-in-one) printer is attached to the N199, usually only the printing and fax functions will work. Other features, such as scanning, probably will not function.

Windows Vista

To set up the Printer Server in Windows Vista, follow the steps below:

1. Open *Printer Folder* from the **Control Panel**.
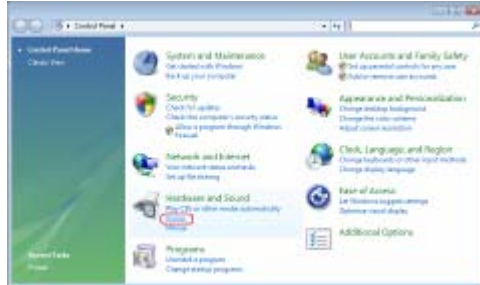
2. Click the right mouse button in anywhere on the **Printers** folder and then select *Add Printer*.
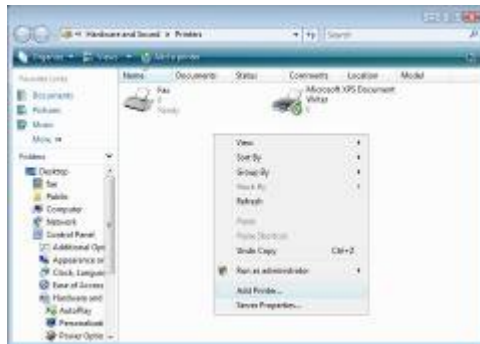
3. Select *Add a network, wireless or Bluetooth printer*.

4. Select *The printer that I want isn't listed*.
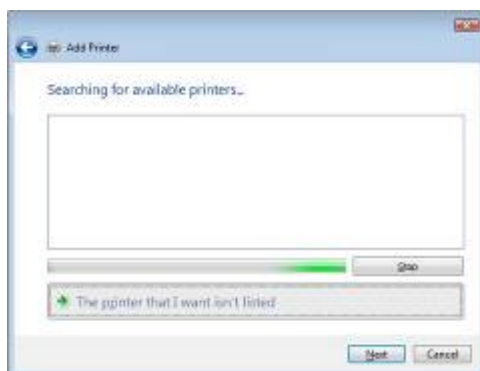
You can press *The printer that I want isn't listed* to go into next page without waiting for **Searching for available printers** to finish.

5. Click *Select a shared printer by name*.
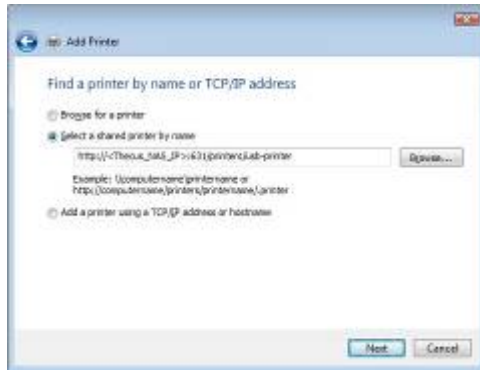
    Type `http://<Thecus_NAS>:631/printers/usb-printer` in the box, where `<Thecus_NAS_IP>` is the IP address of the N199. Click *Next*.

6. Select or install a printer and then press *OK*.
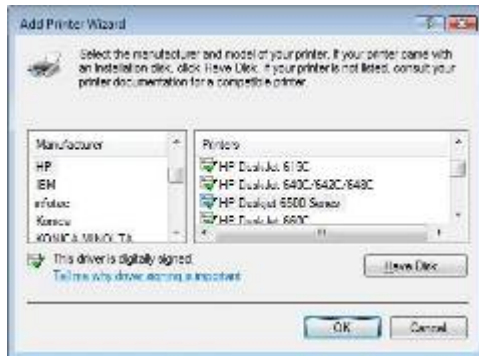
    If your printer model is not listed, please contact your printer manufacturer for help.

7. Windows will attempt to connect to the printer.
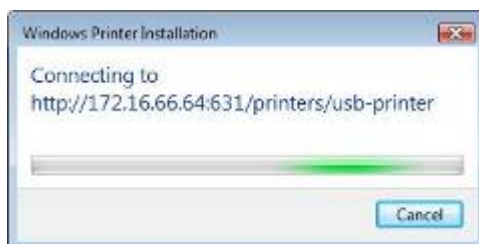
8. You can choose to set this printer as the default printer by checking the **Set as the default printer** box. Click **Next** to continue.

9. Done! Click **Finish**.
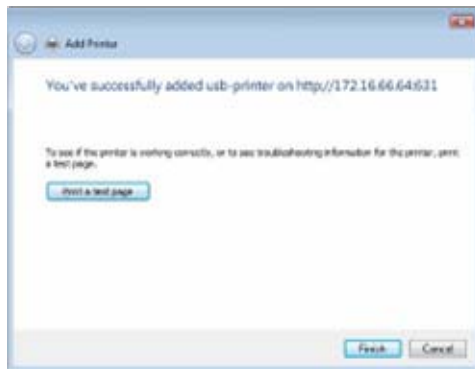
IP Cam Surveillance

With the Simple Surveillance Server, you can connect an IP cam to the N199 to capture images. The Simple Surveillance Server also supports scheduling, which means that you can configure the N199 to perform surveillance at any time.

From the **Status** menu, choose the *IP Cam Surveillance* item, and the **IP Cam Surveillance Information** screen appears. The IP Cam screen provides information and allows you to configure the Simple Surveillance Server.

IP Camera	
Item	**Description**
Location	Specify the location where the IP Cam located.
URL	Input the URL address to capture the image.
Interval	Designates the interval for each captured frame.
Folder	Input where the images will reside.
Action	Click *ADD* to add the task, *Delete* to remove task.
Apply	Click *Apply* to save changes.
Cancel	Click *Cancel* to abandon changes.

You can also designate a schedule for the Simple Surveillance Server using the **Schedule Configuration** window:

Schedule Configuration	
Item	**Description**
Schedule Start	Checked on enable to activate image capture.
Frequency	Frequency of the schedule. Select from **Daily** and **Weekly**
Start Time	Scheduled time for image capture to begin.
End Time	Scheduled time for image capture to finish.
Apply	Click *Apply* to save changes.
Cancel	Click *Cancel* to abandon changes.

IP Cam Configuration

Setting up an IP Cam for use with the N199 is easy. In this example, we'll setup a Vivotek PT7237 IP cam for use with the N199. Configuring a different IP cam will be slightly different depending on the model you are using, but this guide will outline the basics.

Follow the instructions included with your IP cam for installation. Once your IP cam is properly installed, follow the steps below to configure your N199.

Step 1: Connect the IP Cam to the N199

The first step is to connect your IP cam to the N199. To do this, login to the N199's Web Admin Interface and select **IP Cam Surveillance** from the menu. The **IP Cam Surveillance** window will appear. Here, we will connect your installed IP Cam to the N199.
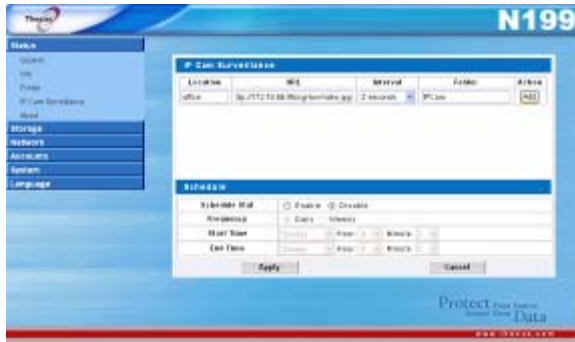
In this window, you will be asked to fill in some basic information about your IP camera. Let's go through each field in order:

Location: Here, you can designate a location that the IP cam is located. For example, if the IP cam is currently monitoring your office, you can enter "office" in the blank. Choose a name that is meaningful will make it easier to refer back in the future.

URL: This is where the URL for your IP cam is entered. Every IP cam has a URL that is provided which links to a landing page for all captured images. In this example, the Vivotek PT7237 uses the following URL:

```
http://172.16.66.95/cgi-bin/video.jpg
```

Please refer to your IP cam manual for the appropriate URL to enter into this field.

Interval: Here, you can designate the time between each captured image. Select the desired interval from the dropdown menu.

Folder: Enter the name of the folder you wish the N199 to store captured images to.

Once this information is entered, simply click *Add*.

After clicking *OK* to the resulting prompt, your IP cam will appear in the **IP Cam Surveillence** window.
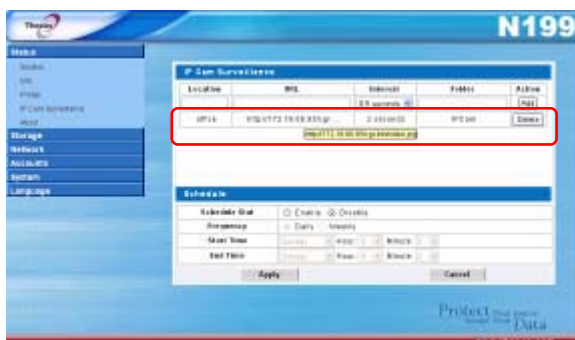
Step 2: Designate a Capture Schedule
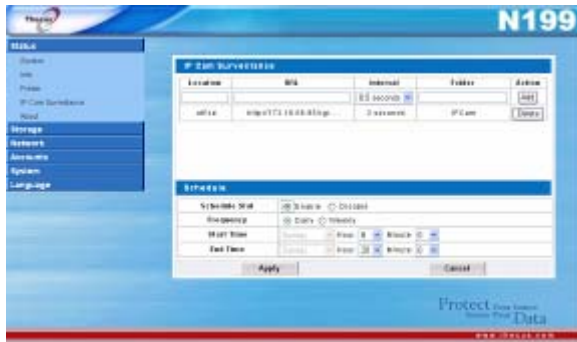
Once connected, the next step is to create a capture schedule for your IP cam. To do this, enter the correct information into the **Schedule** window.

Let's take a closer look at each field:

Schedule Stat: To enable the scheduling function, click *Enable*.

> **NOTE**   If the scheduling function is set to **Disable**, images from any connected IP cameras will not be saved onto the N199.

Frequency: Here, you can set the frequence of the schedule to either **Daily** or **Weekly**. When set to Daily, images will be captured every day at the designated time. When set to Weekly, you can have the IP camera capture images at certain days of the week (i.e Monday to Friday).

Start Time: Choose the start day and time for image capture. If you've selected a **Daily** frequency, you will be unable to select the start day as the IP camera will be set to capture images every day.

End Time: Chosse the end day and time for image capture. If you've selected a Daily frequency, you will be unable to select the end day as the IP camera will be set to capture images every day.

Once you are finished, click *Apply* to enable your new schedule.

Step 3: Browse Captured Images

Once the capture schedule has been set, you can browse the captured images on the N199. The easiest way to do this is to simply open the folder you previously designated as the capture directory and view your captured pictures using your favorite photo viewing software. In the example above, all captured images will appear in the **IPCam** folder.
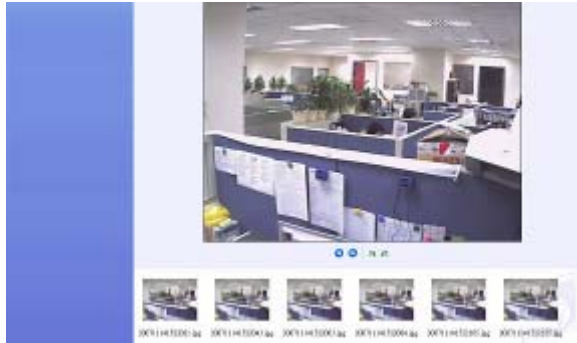
Alternatively, you may also use the built-in web-based Photo Gallery to view your pictures. For information on how to set up the Photo Gallery, check here.

Chapter 5: Using the N199

Overview

Once the N199 is setup and operating, users on the network may manage all varieties of digital music, photos, or files by simply using their web browsers. To manage your personal files or access public files on the N199, just enter its IP address into your browser, and you will be taken to the **N199 Login** page.

Login Page

On the login page, simply enter your **User ID** and **Password** and click *Login* to log into the system.

Once logged in, you will be seen the icons for **WebDisk** where you can see the directories and files stored on the N199.

Using WebDisk

1. From the WebDisk folder list, users will see all public folders and all folders which they have sufficient access rights.

WebDisk Folder List	
Item	**Description**
Name	Name of folder
Comments	Comments about folder
Change Password	Click to change your password
Logout	Click to logout of the WebDisk

2. When they click on the name of a folder, they will be brought to the Folder Screen, where they will see the files within that folder.

WebDisk Folder Screen	
Item	**Description**
Name	Name of folder
Type	File type
Size	Size of file
Modified Date	Date file was last modified
Change Password	Click to change your password
Logout	Click to logout of WebDisk
Up	Click to go up one directory level
New Folder	Click to create a new folder
New File (upload)	Click to upload a new file to this folder
Delete Selected Items	Click to delete all checked items

3. When user clicks on a file name, the file will be downloaded.

> **NOTE** The Delete Selected Items, New Folder, and New File (upload) options are only visible if the user has write access to the specific folder.

For more information on how to setup user rights to the folders, please check *Chapter 3: System Management > Storage Management > Folder Management > Folder Access Control List (ACL)*

To access folders with access control, you must first login with a local user account.

Using iTunes® Server

The N199 has a built-in iTunes® Server that allows you to stream music stored on the N199 to any iTunes-ready device on your network.

You can use the WebDisk function to manage your digital music, or you can manage through SMB/CIFS (see SMB/CIFS Setup section).

Adding Music Files

You could add music files into iTunes Server through Web User Interface; however, if you have lots of folders and files to upload, there is a simpler way.

1. Open a Windows Explorer and type the N199 IP address in the address bar (i.e. `\\192.168.1.100`).

2. Double click the *Music* folder to enter it. Then drag and drop music folders and files here.

3. The N199 iTunes server will take some time to cache the ID3 tag of every file. Once the process is done, you will see all the music files from iTunes clients.

Playing Music Files

Once your music files are added to the N199, playing them on any iTunes-equipped computer connected to the network is easy:

1. Open iTunes.

2. You should see **Thecus_N199** under the **SHARED** heading in the left hand menu.

3. Click **Thecus_N199** and all shared music will be displayed, ready to be enjoyed right from iTunes.

Using Photo Gallery

Using the Photo Gallery, users can view and share photos, and even create their own albums right on the N199. To manage your photo gallery or see other photo albums, click on the *Photos* icon from the left panel.

You will see your own Photo Gallery and all public Photo Albums on the network.

To manage any picture files, you must first select the item by clicking its check box.

Managing Albums and Photos

Photo		
Icon	**Function**	**Description**
Cover	Make Cover	Make selected photo your cover picture.
+	Add	Add a new album or photos.
Edit	Edit	Edit the name and description of the selected album or photo. Each name is limited to 20 characters and each description is limited to 255 characters.
X	Delete	Delete the selected albums or photos.

NOTE
- Only logged in users will see these icons.
- To prevent system errors, the N199 sets the following limitations on photo files:
  - Each file upload is limited to a size of 4MB. Files exceeding 4MB will NOT be uploaded and no error message will appear.
  - Only these photo file types will be uploaded: *.jpg, *.gif, *.bmp, *.png, *.pcx, *.psd, *.bmp.
  - If duplicate file names exist during upload process, system will add a number in front of the original file name (abc (1abc).

Creating Albums

To create a photo album, follow the steps below:

1. Click the *Add* button to create a new album.

2. Enter a name for the album, and enter a description if you wish. Then, click on the *Create Album* button.

Password Protecting Albums

If you would like to put a password on a particular album, follow these steps:

1. Select the album to be protected, click on the *Edit* button, and the **Album Edit** screen will appear.

2. The owner of the album can enter an album password to protect the album, so that only people with the correct password can view the album.

Uploading Pictures to Albums

Uploading pictures to albums using the Web User Interface is easy:

1. When the album is created, click the album icon to enter the album. Initially the album is empty.

2. Click the **Add** button to upload pictures into the album. The **Upload Photos** screen will appear. Users can select and upload up to 8 pictures at a time.

3. Once the picture is uploaded, you can view it in the album.

4. The owner of the album can delete or modify the pictures with the **Delete** or **Modify** buttons on the top right hand corner.

Windows XP Publishing Wizard

There are many ways for a local user to upload pictures into their photo album. Users of Windows XP can upload their pictures using the Windows XP Publishing Wizard.

1. Click on the **XP Publishing Wizard** icon.

2. The **XP Web Publishing Wizard Client** screen appears. Click on the link to install the Publishing Wizard.

3. Windows XP will ask whether you want to run or save this file. Click **Run**.
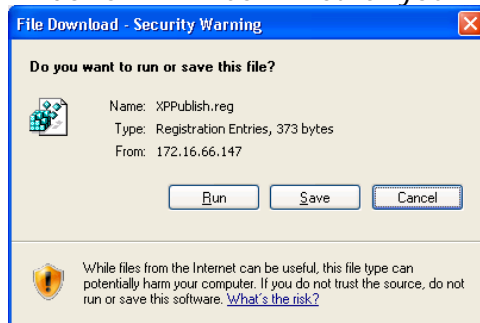
4. Once the Wizard is installed, use the Windows file manager to browse the folder that contains the picture you want to publish. On the left pane, there will be an icon labeled "**Publish this folder to the Web**".

64
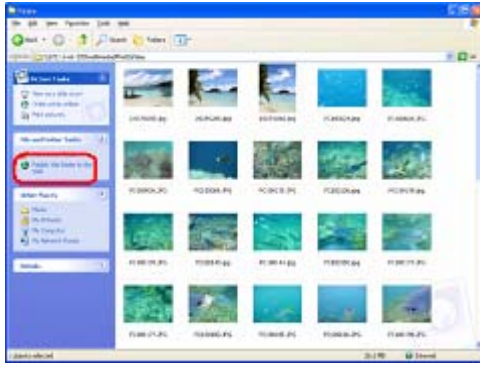
5. Click on this icon and **Web Publishing Wizard** will start.

6. Select the pictures you want to publish to the Photo Web Server by placing a check mark on the top left hand corner of the picture. Click *Next*.

7. Your PC will start to connect to the Photo Web Server.

8. Select **N199 Photo Gallery Wizard** to publish your pictures to the N199.
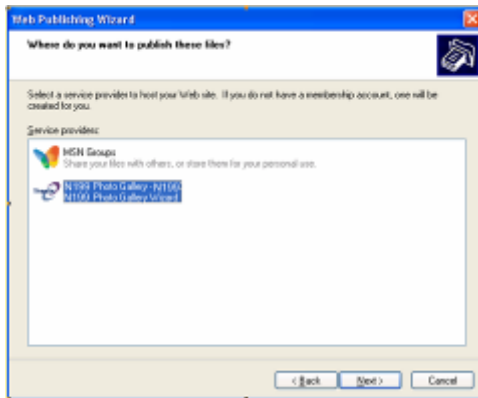
9. Login into the N199 with your local user name and password.

10. Create your album by entering an album name and clicking on the **Create Album** button.
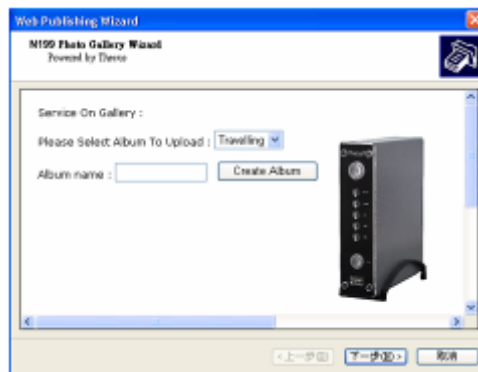
11. Select the album you want to upload your pictures to.

12. Confirm the target album.

13. Windows will show you that the picture upload is in progress.
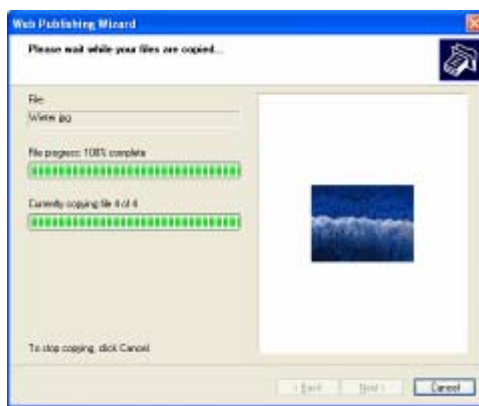
14. When the upload is finished, the Wizard will ask you whether if you want to go to the website. Click *Finish* to go to your Photo Web Server.
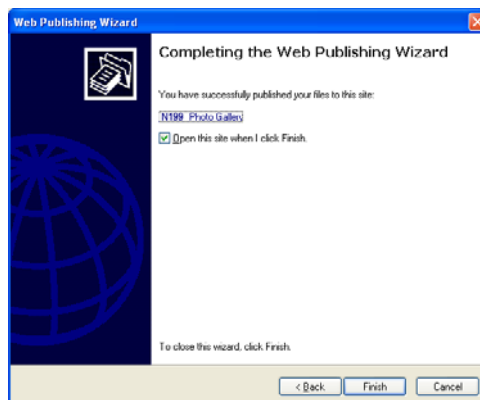
15. Click on the user's icon to go to that user's album.

16. You will see the user's album list. Click on **MyAlbum**.

17. Finished! You will see the pictures just selected in the album.

EXIF Information

While viewing pictures, you can also have the N199 display the EXIF information for each photo.

Slide Shows

Slide shows are a great way to enjoy pictures stored on your N199.

You can click on the *Start Slide Show* icon on the top right hand corner to start the slide show.

To stop the slide show, click on the *Stop Slide Show* icon on the top right hand corner.

File Backup

There are a number of ways to back up your data to your N199.

Nsync

You can backup a share folder to another N199 (Nsync Target) or any FTP server for safe keeping as long as you have appropriate access right on that target. When using Nsync between two N199s, you have the option to transmit files securely between two N199s.
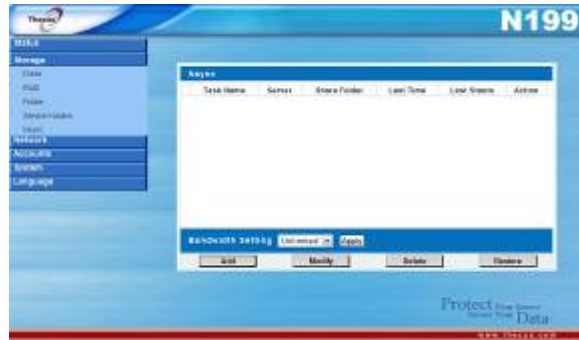
If the files on your N199 are lost for any reason, you can restore those files from the target N199. To backup files regularly, you can set up a scheduled task to run only once, daily, weekly, or monthly. You can also limit the bandwidth of your Nsync tasks, so other users on the network can share the bandwidth equally.

Under the **Storage** menu, click *Nsync* and the **Nsync** window appears. Below is a description of each field:

Nsync	
Item	**Description**
Task name	The name of your Nsync task.
Server	The IP address of your target server
Share folder	The share folder you would want to backup.
Last Time	The time when the last Nsync task was executed.
Last Status	The status of your last Nsync task.
Action	Administrator can run or stop an Nsync task by pressing the action button.
Bandwidth Setting	Bandwidth control on Nsync tasks.
Add	Click to add a Nsync task
Modify	Click to modify an Nsync task.
Restore	Restore share folder from an Nsync target.
Delete	Click to delete an Nsync task. Backup files on Nsync target is also deleted.

Adding an Nsync Task

From the **Nsync Information** screen, click *Add* to display the **Add Nsync Task** screen.
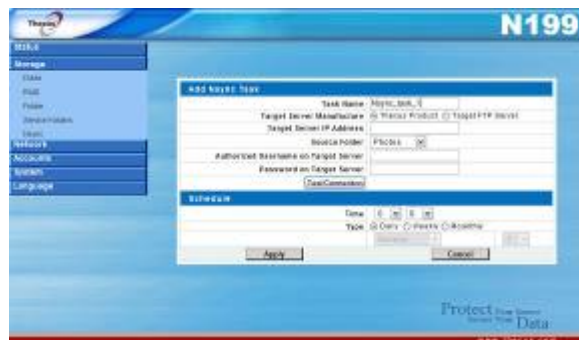
Add Nsync Task	
Item	**Description**
Task Name	The name of your Nsync task.
Manufacturer	Select whether the target is a Thecus Product (e.g. N199) or FTP server.
Target Server IP Address	The IP address of your target server.
Source Folder	The share folder you want to backup.
Nsync Task Name	The name of your Nsync task.
Authorized Username on Target Server	The account name on the target server.
Password on Target Server	The password for the username on the target server.
Test Connection	Click to check the connection to the Target Server.
Schedule	Schedule backup of your share folders.
Time	The time when the Nsync task will run.
Type	Select whether to run the Nsync task daily, weekly, or monthly. **Daily**: input the time of day to execute Nsync task. **Weekly**: input which day of the week to execute the task. **Monthly**: decide which day of the month to execute the task.
Apply	Click to submit the task.

NOTE — Before starting an Nsync Task, make sure the target server's Nsync Server (or FTP Server) is enabled.

Modifiying an Nsync Task

1. On the Nsync window, select the Nsync task you would like to modify by checking its checkbox. Click *Modify* and the **Modify Nsync Task** window appears.

2. Change the settings for your Nsync task.

3. Click *Apply* to save your settings.
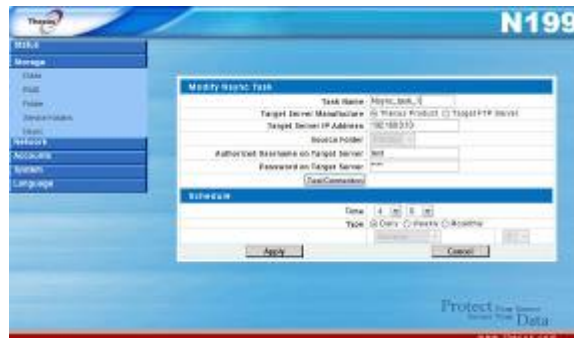
Deleting an Nsync Task

1. On the Nsync window, select the Nsync task you would like to delete by checking its checkbox.

2. Click *Delete* to remove the selected Nsync task.

Setting Up an Nsync Target on an Nsync Device

On the Nsync target server, the administrator of that server has to set up a user account with a folder named "nsync" and grant write access.

1. On the Nsync server, add a user for Nsync source (ex. nsyncsource1). For instructions on how to add a user on the N199, see **Chapter 4: System Management > User and Groups Management > Local User Configuration > Adding Users**.

2. On the Nsync server, grant that user (ex. nsyncsource1) write access to the **nsync** folder. For instructions on how to set up a folder's ACL, see **Chapter 4: System Management > Folder Management > Folder Access Control List (ACL)**.

3. Once this is done, the target server will start accepting Nsync tasks from server using that ID and password.

Setting Up an Nsync Target on Another Device

If you selected "Other Device" when setting up your Nsync task, the N199 will use the FTP protocol to back up the share folder. On the external storage device, make sure there is a folder named "nsync", and the Auth ID has writable permission in that folder.

Designating N199 as an Nsync Target

The N199 can act as an Nsync server, enabling another Nsync-equipped Thecus NAS at a remote location backup their files to this N199. From the **Network** menu, choose the *Nsync Target* item, and the **Nsync Target Server Setting** screen appears.
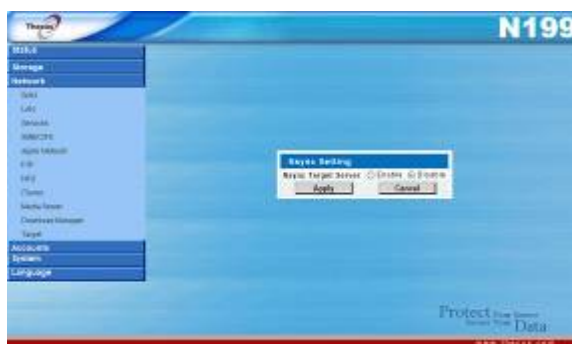
Nsync Target Server Setting	
Item	**Description**
Nsync Target Server	*Enable* or *Disable* Nsync Target support.
Apply	Click *Apply* to save your changes.
Cancel	Click *Cancel* to cancel your changes.

NOTE	To enable Nsync task to go thru firewall, you have to open port TCP/1194 on your firewall in both directions.

Thecus Backup Utility

The Thecus Backup Utility is on your Installation CD. When you click on the CD, the Backup Utility will be installed under **Program Groups** > **Thecus** > **Thecus Backup Utility**. If it is not installed, you can copy the file (**Thecus Backup Utility.exe**) to a convenient location on your hard disk and double click to execute it.

Thecus Backup.exe

When you execute this utility for the first time, it will ask you whether to create a DB file. Click **Yes**.

1. Click **Add** to create a Backup task. The **Add New Task** dialog box appears.
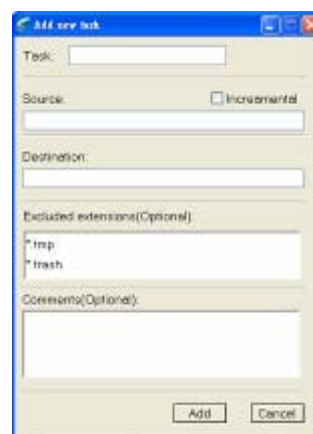
Add New Task	
Item	**Description**
Task	Specifies a name for the current task.
Source	Click to specify the source folder/file location.
Incremental	Click to specify whether the backup will be incremental. If unchecked, the backup will be a full backup.
Destination	Click to specify the destination folder/file location.
Excluded extensions	Files with these file name extensions will be skipped and not back up to the destination.
Comments	If you wish, enter comments here for your records.

2. To schedule the task to run at regular intervals, click on the **Schedule** icon for that task. You can schedule the task to run **Monthly** or **Weekly**.

3. To check the log for that task, click on the **Log** icon for that task.

72

Windows XP Data Backup

If you use Windows XP Professional, you can also use the Windows Backup Utility (Ntbackup.exe) to backup your files.

If you use Windows XP Home Edition, follow these steps to install the utility:

1. Insert the Windows XP CD into a drive and double-click the *CD* icon in **My Computer**.

2. When the Welcome to Microsoft Windows XP screen appears, click *Perform Additional Tasks*.

3. Click *Browse this CD*.

4. In Windows Explorer, navigate to *ValueAdd* > *Msft* > *Ntbackup*.

5. Double-click *Ntbackup.msi* to install the backup utility.

Once installed, you can use the Windows Backup Utility by following the steps below:

1. Click *Start*, and point to *All Programs* > *Accessories* > *System Tools* > *Backup* to start the wizard.
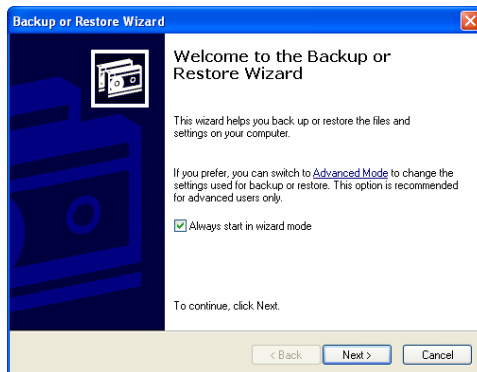
2. Click *Next* to skip past the opening page. Choose **Backup files and settings** from the second page, and then click *Next*.

3. Select which option you Want to back up.

4. Click *Next* and in the Backup Type, Destination, and Name page, specify a back up location using the *Browse* button.

5. Find and select the drive that specifies your N199 as your backup destination and click *Next*.

6. Click *Next* to display the wizard's final page and click *Finish* to start backing up.

Apple OS X Backup Utilities

Mac OS X does not include any backup software. However, there are a number of backup solutions available for the Mac OS X, including: iBackup, Psyncx, iMSafe, Rsyncx, Folder Synchronizer X, Tri-BACKUP, Impression, Intego Personal Backup, SilverKeeper, and Apple's dotMac Backup utility to name just a few. To find even more freeware and shareware backup utilities to choose from, go to VersionTracker or MacUpdate and search on "backup".

One-Button USB Copy

The N199 can quickly backup data from USB devices with its One-Button USB Copy function. To use this function, plug a USB storage device to the N199's front USB port. Then, simply press the One-Touch USB Copy button on the front panel, and all of the contents of the USB storage device will be copied over to the N199.

All of the files copied will be contained in the USBCopy service folder, under a subfolder names with a timestamp (YearMonthDayHHMM). For more on the N199's service folders, check out **Chapter 3: System Management** > **Storage Management** > **Service Folders**.

Chapter 6: Tips and Tricks

Mapping a Client PC to the N199

You can map share folders on the N199 so that you can access them as if they were drives on your computer. You can connect to the shared network folders on the N199 as follows:

Windows

1. Go to the **My Computer** folder in Windows.

2. In the menu bar, select *Tools* and then *Map Network Drive...*

3. The **Map Network Drive** window appears.

4. Assign a drive letter for the share folder.

5. Click the *Browse* button to find the folder over your network. Alternatively, you may enter the folder name you wish to connect to or enter its IP address. (i.e. \\192.168.1.100\share)

6. Click *Finish*. When the **Connect As...** window appears, enter a user name and password.

7. Click **OK**. The share folder appears as the drive you assigned. You can now access this folder as though it were a drive on your computer.

Apple OS X

On an Apple computer, you can connect to shared computers and servers using a network address.

1. Choose **Go** > **Connect to Server...**

2. Enter the network address for the server in the Server Address text box.

When connecting using SMB/CIFS protocol, type:
`smb://192.168.1.100/Folder1`
When connecting using AFP protocol, type:
`afp://192.168.1.100/Folder1`
Click **Connect**.

3. When MAC OS X is trying to connect N199, it will ask for a User Name and Password which has access to the folder.

4. When MAC OS X has connected to the N199 successfully, an icon representing the folder will appear on the MAC OS X desktop. You can access the folder by double clicking on the icon.

USB Storage Expansion

The N199 supports external USB hard disks through its two USB ports. Once a USB hard disk has been successfully mounted, users can access the files on the USB hard disk under the **USBHDD** folder. All file names on the USB disk volume are case sensitive.
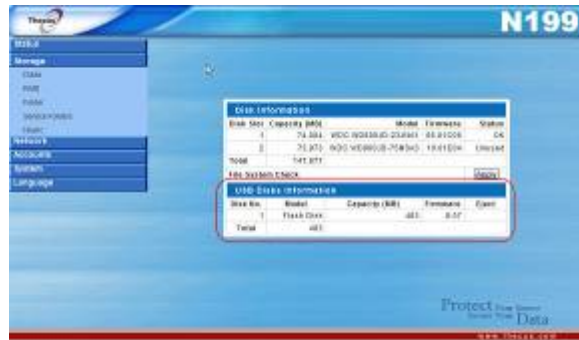
Before attaching a USB disk drive to N199, you have to partition and format it on a desktop computer or a notebook first. The attached device will be located at \\192.168.1.100\usbhdd\sda1\ where 192.168.1.100 means the IP address of N199, usb1 stands for the first USB device, and 1 stands for the first partition on disk #1, the USB disk drive. If it is an NTFS partition, NAS users can open or copy files from \\192.168.1.100\usbhdd\sda1\ but cannot add new files or modify existing files.

| NOTE | If you want to write to an USB storage device, the file system must be FAT32. |

USB Storage	FAT32 Partition	NTFS Partition
Read	OK	OK
Write	OK	-

77

eSATA Storage Expansion

The N199 supports external eSATA hard disks with its eSATA port. Once an eSATA hard disk has been successfully mounted, the eSATA drive will be visible in the **Disks Information** screen, located under the **Storage** menu.

To install an eSATA hard disk, follow the steps below:
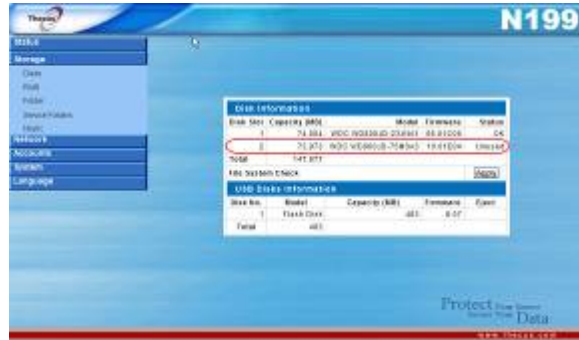
1. Press the power button. The power off sequence will begin, and the N199 will power off.

2. Plug the eSATA hard disk to the eSATA port on the N199.

3. Power on the N199 and login under the administrator account to enter the Web Administration Interface.

4. The eSATA hard disk will be visible in the **Disk Information** screen under hard disk slot 2.

> **WARNING** Installing an eSATA hard disk will erase all data on that disk. This data can not be recovered. Please ensure that all contents on the eSATA disk are backed up before installing into the N199.

Replacing Damaged Hard Drives

If you are using RAID 1, you can easily replace a damaged hard drive in the Thecus N199 while keeping your data secure with the system's automatic data recovery.

Hard Drive Damage

When a hard drive is damaged, its LED glows a steady red. If there is data in the RAID volume, the system LED also glows red and the system beeps.

Replacing a Hard Drive

To replace a hard disk drive in the N199:

1. Remove two screws located on the back of the unit using a Philips screwdriver.

2. Unscrew four mounting screws.

3. Lift up the hard disk tray by pulling up the top panel of the N199.

4. Remove the damaged hard drive.

5. Carefully insert a standard 3.5" SATA hard disk into the tray, and secure the hard disk with screws from the included accessory pack.

6. Carefully lower the hard disk tray back into the N199.

7. After making sure the tray is in place and the connectors are aligned, secure the hard disk tray with screws.

RAID Auto-Rebuild

When using RAID 1 on the N199, you can use the auto-rebuild function when an error is detected.

1. When a hard disk fails the system beeps and/or an email notification is sent to specified receivers.

2. Check the hard disk LEDs to see which disk has failed.

3. Follow the steps mentioned above to replace the failed hard disk.

4. The system automatically recognizes the new hard disk and starts the auto-rebuild sequence to resume its status before the hard disk crash.

Remote Administration

You can set up your N199 for remote administration. With remote administration, you can access your N199 over the Internet, even if your N199 is behind a router. This is especially useful if you are traveling and suddenly need a file from your N199.

Setting up remote administration is a three-part process, and will require the following equipment:

- Thecus N199 NAS device
- Cable/DSL Router with Dynamic DNS support
- Home PC
- Internet Connection

NOTE Router setup will differ slightly depending on router used. For this example, we will use the Asus WL500g because it has support for Dynamic DNS. Contact your router hardware vendor for setup help.

Part I - Setup a DynDNS Account
1. Go to `http://www.dyndns.org` from your home PC.
2. Click on the ***Sign Up Now*** link.
3. Check the Check boxes, select a user name (i.e.: N199), enter your email address (i.e.: xxx@example.com), check ***Enable Wildcard***, and create a password (i.e.: xxxx).
4. Wait for an email from www.dyndns.org.
5. Open the email and click on the link to activate your account

Part II - Enable DDNS on the Router
1. Go to the router setup screen and select ***IP Config*** > ***Miscellaneous DDNS Setting*** from your Home PC.
2. Click on ***Yes*** for **Enable the DDNS Client?**
3. Select `www.dyndns.org`.
4. Go to router setup screen, and enter the following information:
    a. User Name or E-mail Address: ***xxx@example.com***
    b. Password or DDNS Key: ***xxxx***
    c. Host Name: `www.N199.dyndns.org`
    d. Enable wildcard? Select ***Yes***
    e. Update Manually: Click ***Update***

Part III - Setting up Virtual Servers (HTTPS)

1. Navigate to *NAT Setting* > *Virtual Server*.
2. For **Enable Virtual Server?**, select *Yes*
3. Setup the HTTPS Server
   a. **Well-Known Applications**: Select **User Defined**
   b. **Local IP**: Enter **192.168.1.100**
   c. **Port Range**: **443** (the default HTTPS port setting on the N199)
   d. **Protocol**: select **TCP**
   e. Click *Add*.
   f. Click *Apply*.
4. Test the HTTPS connection from another computer on the Internet
   a. From a remote computer, open your browser and enter **https://www.N199.dyndns.org**
   b. You should see the login page of N199.

Firewall Software Configuration

If you are using a software firewall (i.e. Norton Internet Security) and are having trouble connecting to the N199, you can try the following steps:

1. Double click the **NIS** icon on system tray, and then configure the **Personal Firewall**.

2. On the **Programs** page, find the **SetupWizard.exe** and change its permission to "Permit All". If it's not in the program list, use the **Add** or **Program Scan** buttons to find it.

3. On the **Networking** page, manually add N199 IP address (i.e. **192.168.1.100**) to the **Trusted** list.

Chapter 7: Troubleshooting Guide

N199 Won't Turn On

In the event that the N199 won't turn on, check to see that the power cable is correctly plugged in to the N199. Also check to see if the electrical outlet is functioning.

Resetting NAS IP Address and Admin Password

If you've forgotten the admin password, or if you need to reset the unit's IP address, first make sure that the unit is powered off. With the unit powered off, press and hold the reset button. With the reset button held down, power on the system by pressing the power button. You will hear the unit beep once when you turn it on, do not release the reset button until you hear the unit beep again. After that, the N199's WAN IP address will be reset to 192.168.1.100 temporarily. Please note that all file services at this time will be stopped.

1. When you point your browser to 192.168.1.100, you will see the following screen.

2. If you select **Reset to Factory Default** option, the system will be reset. Below are the default system settings:
   Admin password → `admin`
   WAN IP address → `192.168.1.100`
   WAN IP Gateway → `192.168.1.1`
   WAN Jumbo Frame Support → `Off`
   LAN IP → `192.168.2.254`
   LAN Jumbo Frame Support → `Off`
   HTTP Port → `80`
   HTTPS port → `443`

Forgot My Network IP Address

If you forget your network IP address and have no physical access to the system, you can use the setup wizard to retrieve the IP of your N199.

1. Start the Setup Wizard, and it will automatically detect all Thecus IP storage products on your network.

2. You should be able to find the IP address of the N199 which you have forgotten in the **Device Discovery** screen.

Can't Access N199 from the LAN

If you cannot access the N199 from the LAN, make sure that its network cable is correctly plugged in. Also, check to see if the N199's WAN and LAN settings are configured correctly.

Can't Map a Network Drive in Windows XP

You may have problems mapping a network drive under the following conditions:

1. The network folder is currently mapped using a different user name and password. To connect using a different user name and password, first disconnect any existing mappings to this network share.

2. The mapped network drive could not be created because the following error has occurred: **Multiple connections to a server or shared resource by the same user, using more than one user name, are not allowed.** Disconnect all previous connections to the server or shared resource and try again.

To check out existing network connections, type `net use` under the DOS prompt.

N199 Chassis Feels Hot

The N199 uses its chassis to dissipate heat, and feeling warm to the touch is completely normal. As such, make sure that the N199 is left in a well-ventilated area to avoid overheating the unit.

Restoring Factory Defaults

From the **System** menu, choose the *Factory Default* item and **the Reset to Factory Default** screen appears. Press *Apply* to reset the N199 to factory default settings.

WARNING	Resetting to factory defaults will not erase the data stored in the hard disks, but WILL revert all the settings to the factory default values.

Problems with Time and Date Settings

The administrator is able to select an NTP Server to keep the N199's time synchronized. However, if the N199 can not access the Internet, you may encounter a problem when setting the Time and Time Zone. If this happens:

1. Login to the Web Administration Interface.

2. Navigate to *System* > *Time*.

3. Under **NTP Server**, select *No*.

4. Set the **Date**, **Time**, and **Time Zone**.

5. Click *Apply*.

In addition, if the N199 is able to access the Internet and you want to keep the NTP Server `clock.isc.org` by default, please make sure the DNS Server is correctly, thereby allowing the NTP Server name to correctly resolve. (See *Network* > *LAN 1* > *DNS Server*)

Simple Problem Diagnosis Procedure

This procedure is meant to provide a simple and quick way to identify which part of the N199 has failed.

1. Don't insert a hard disk into the N199. Attach the power cord and then reset the IP address and admin password to the default settings by doing the following:
   a) Power on the N199 and immediately press the *Reset* button for 10 seconds. (The Reset button is near the LAN connector)
   b) This resets the N199 to its default IP address and password settings.
      - Default IP: `192.168.1.100`

- Default admin password: `admin`

2. Attach the power cord and connect the LAN cable between the N199 and a PC. Don't use a hub.

3. Turn on the N199 and check the front panel. The **Power LED** should glow blue after power button is pressed. Then, the **Busy LED** starts blinking orange for around 60 seconds. After that, the **Busy LED** turns off. If the Busy LED keeps blinking orange for more than 3 minutes, the firmware may be corrupted during improper firmware upgrade procedures. It means that the motherboard has malfunctioned and needs to be repaired.

4. Set the IP address of the PC as `192.168.1.111`, and then access the **Login** page. Make sure the N199 and the PC is directly connected through a LAN cable, and not through a hub or a router.

5. Check if the Web Administration Interface shows up and works fine. Then, check if the system status is normal and the **HDD Power LED** works fine. If the results are positive, it means that the N199 is functioning normally. Otherwise, the N199 may be damaged.

6. Suppose that the N199 has been damaged. If the **Power LED** glows blue and both system and power fans work fine after power button pressed, the motherboard needs to be checked and repaired. Otherwise, the power supply unit has problems.

Appendix A: Product Specifications

Hardware Specifications

Core Processors / Memory		
	Processor	StorLink SL3516 SoC
	NOR Flash	16MB
	System Memory	128MB
Network Interfaces		
	LAN	1 x 10/100/1000 Mbps Ethernet Port
	Wireless (optional)	IEEE 802.11b/g AP mode (using approved USB Dongles)
Storage		
	HDD Bay	3.5" SATA HDD
	HDD Capacity	80/120/160/200/250/300/400/500GB
	USB 2.0	USB 2.0 ports for easy storage expansion
IO Interfaces		
	USB	2 x USB 2.0/1.1 host port (front x 1, back x 1)
	eSATA	1 x eSATA port
System Information		
	LED Indicators	1 x Power LED 1 x Status LED 1 x HDD LED 1 x LAN LED 1 x USB LED
	Buzzer	System alert
	Real-time Clock	Battery backup system clock
Thermal/Fan Control		
	Thermal	Thermal sensor for system temperature
	Fan	Temperature-controlled system fan
Buttons		
	Power	On front, controlled by software
	Reset	Reset to factory defaults; on back panel
	USB Copy	On front, copies contents of USB devices to NAS
Physical		
	Width	160 mm
	Height	85 mm
	Depth	200 mm
	Security	Kensington Lock
Power Supply		
	External Adaptor	External AC power supply Input: AC 100 ~ 240 Volt, 50/60 Hz Output: DC 12V
Environment		
	Temperature	5 °C to 40 °C (Operating)
	Humidity	0 ~ 80 % R.H. Non-condensing
	Safety and Environment	CE, FCC, BSMI, C-Tick, RoHS Compliant

Software Specifications

Network		
	Configuration	Fixed IP address, dynamic IP address, PPPoE, DDNS
	IP Sharing Mode	NAT for WLAN connections
	Transport Protocols	TCP/IP, AppleTalk
	Wireless LAN	802.11b/g AP mode supported by USB Dongle (ZD1211x based)
Data Access		
	Network File Protocols	Microsoft Networks (CIFS/SMB) Apple Filing Protocol (AFP 3) Network File System (NFS v3) File Transfer Protocol (FTP) WebDisk (HTTP/HTTPS)
	Client Platform Support	Windows NT / 2000 / XP / 2003 / Vista UNIX / Linux / BSD Apple OS X / 9
	DHCP Server	Assigning IP addresses on LAN / WLAN ports
	Download Manager	Supports BT, FTP, HTTP scheduled downloads
	Print Server	Network printing through Internet Printing Protocol (IPP)
Disk Management		
	RAID Levels	JBOD, 1 (with attached eSATA hard disk)
	Auto Rebuild	Rebuild new hard drives while inserting to an existing RAID system
Power Management		
	Fan	Thermally-controlled system fan
Multimedia Support		
	Media Server	Supports uPnP AV streaming protocol
	iTunes Server	Supported File Types: AAC, MP3 w/ID3 tags, WAV
	Photo Web Server	Supported File Types: GIF, JPG (JPEG), BMP, PNG Supports EXIF display Supports slide show
	Simple Surveillance Server	Supports image capture, preview, scheduling
Share Management		
	User Authentication	Supports built-in user accounts and groups
	Folder Management	Share Folder Level Permission Public Folder
	Permission Management	Read/Write, Read Only or Deny options on individual users or groups
File System		
	File System Type	Journaling File System
	Language Support	Unicode Support Code page support for AFP, FTP & iTunes
System Management		
	Web-Based Administration	Multilingual support English, French, German, Italian, Spanish, Traditional Chinese, Simplified Chinese, Korean, and Japanese
	Setup Wizard	MS Windows Setup Wizard Supports multiple languages Supports Windows 2000/XP/2003/Vista
	Email Notification	Send system message via Email to specified Email accounts
Backup		
	Nsync	Remote backup utility
	Thecus Backup Program	Client backup utility Supports Microsoft Windows XP/2000/MAC OS X
	One-Button Copy	Copy USB mass storage contents to specified location on NAS

** For supported USB dongles, please contact sales@thecus.com

Appendix B: Customer Support

If your N199 is not working properly, we encourage you to check out **Chapter 7: Troubleshooting Guide**, located in this manual. You can also try to ensure that you are using the latest firmware version for your N199. Thecus is committed to providing free firmware upgrades to our customers. Our newest firmware is available on our Download Center:

http://www.thecus.com/download.php

If you are still experiencing problems with your N199, or require a Return Merchandise Authorization (RMA), feel free to contact technical support via our Technical Support Website:

http://www.thecus.com/support_tech.php

Customers in the US should send all technical support enquiries to this email address:

support-us@thecus.com

If you would rather receive support over the phone, you can contact Thecus FAE Support at:

+886-2-26981788

Please note that our headquarters are in Taipei, Taiwan, and our office hours are Monday to Friday, 9:00 to 17:00.

For Sales Information you can e-mail us at:

sales@thecus.com

Thank you for choosing Thecus!

Appendix C: RAID Basics

Overview

A Redundant Array of Independent Disks (RAID) is an array of several hard disks that provide data security and high performance. A RAID system accesses several hard disks simultaneously, which improves I/O performance over a single hard disk. Data security is enhanced by a RAID, since data loss due to a hard disk failure is minimized by regenerating redundant data from the other RAID hard disks.

Benefits

RAID improves I/O performance, and increases data security through fault tolerance and redundant data storage.

Improved Performance

RAID provides access to several hard disk drives simultaneously, which greatly increases I/O performance.

Data Security

Hard disk drive failure unfortunately is a common occurrence. A RAID helps prevent against the loss of data due to hard disk failure. A RAID offers additional hard disk drives that can avert data loss from a hard disk drive failure. If a hard drive fails, the RAID volume can regenerate data from the data and parity stored on its other hard disk drives.

RAID Levels

The Thecus N199 supports JBOD standard, and RAID 1 with an attached eSATA hard disk. You choose a RAID level when you create a system volume. The factors for selecting a RAID level are:

- Your requirements for performance
- Your need for data security
- Number of hard disk drives in the system, capacity of hard disk drives in the system

The following is a description of each RAID level:

RAID 1

RAID 1 mirrors all data from one hard disk drive to a second one hard disk drive, thus providing complete data redundancy. However, the cost of data storage capacity is doubled. This is excellent for complete data security.

JBOD

Although a concatenation of disks (also called JBOD, or "Just a Bunch of Disks") is not one of the numbered RAID levels, it is a popular method for combining multiple physical disk drives into a single virtual one. As the name implies, disks are merely concatenated together, end to beginning, so they appear to be a single large disk.

As the data on JBOD is not protected, one drive failure could result total data loss.

Stripe Size

The length of the data segments being written across multiple hard disks. Data is written in stripes across the multiple hard disks of a RAID. Since multiple disks are accessed at the same time, disk striping enhances performance. The stripes can vary in size.

Disk Usage

When both disks are of the same size, and used in RAID, the N199's disk usage percentage is listed below:

RAID Level	Percentage Used
RAID 1	50%
JBOD	100%

Appendix D: Licensing Information

Overview

This product included copyrighted third-party software licensed under the terms of GNU General Public License. Please see THE GNU General Public License for extra terms and conditions of this license.

Source Code Availability

Thecus Technology Corp. has exposed the full source code of the GPL licensed software. For more information on how you can obtain our source code, please visit our web site, http://www.thecus.com.

Copyrights

- This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).
- This product includes software developed by Mark Murray.
- This product includes software developed by Eric Young (eay@cryptsoft.com).
- This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).
- This product includes PHP, freely available from (http://www.php.net/).
- This product includes software developed by the University of California, Berkeley and its contributors.
- This product includes software developed by Winning Strategies, Inc.
- This product includes software developed by the Apache Group for use in the Apache HTTP server project (http://www.apache.org/).
- This product includes software developed by Softweyr LLC, the University of California, Berkeley, and its contributors.
- This product includes software developed by Bodo Moeller.
- This product includes software developed by Greg Roelofs and contributors for the book, "PNG: The Definitive Guide," published by O'Reilly and Associates.
- This product includes software developed by the NetBSD Foundation, Inc. and its contributors.
- This product includes software developed by Yen Yen Lim and North Dakota State University.
- This product includes software developed by the Computer Systems Engineering Group at Lawrence Berkeley Laboratory.
- This product includes software developed by the Kungliga Tekniska Högskolan and its contributors.
- This product includes software developed by the Nick Simicich.
- This product includes software written by Tim Hudson (tjh@cryptsoft.com).
- This product includes software developed by Christopher G. Demetriou for the NetBSD Project.

CGIC License Terms

<u>Basic License</u>

CGIC, copyright 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004 by Thomas Boutell and Boutell.Com, Inc.

Permission is granted to use CGIC in any application, commercial or noncommercial, at no cost. HOWEVER, this copyright paragraph must appear on a "credits" page accessible in the public online and offline documentation of the program. Modified versions of the CGIC library should not be distributed without the attachment of a clear statement regarding the author of the modifications, and this notice may in no case be removed. Modifications may also be submitted to the author for inclusion in the main CGIC distribution.

GNU General Public License

Version 2, June 1991

Copyright © 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

PREAMBLE

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you Want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we Want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we Want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

  TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

  Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program).

  Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

  You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

  a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

  b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the

operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

    Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS